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ROCKS and MINERALS

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A Magazine for
Mineralogists,
Geologists and
Collectors



Official Journal
of the
Rocks and Minerals
Association

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Whole No. 231

Vol. 27, No. 11 - 12

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HUGH A. FORD

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No lists furnished, but inquiries for specific minerals welcomed.

ROCKS and MINERALS

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PETER ZODAC

November-December
1952

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Chips from the Quarry

Christmas Greetings

Happy New Year

Again it is the happy duty of the Editor to extend to each and every one of our subscribers, advertisers, readers, and friends, a Merry Christmas and a Happy New Year. May 1953 prosper each and every one of you abundantly, socially, and financially is our sincere wish.

Open Letter to the Editor

Dear Mr. Zodac:

There is no doubt about it. ROCKS AND MINERALS is the finest magazine of its type and it seems to me to be getting better with every issue.

I am greatly intrigued and interested in the articles by Mr. Joel Martin Halpern. They are of such great variety and are presented in an interesting manner with carefully chosen illustrations.

In my estimation Mr. Halpern is a true scholar and I look forward to his articles.

Your own writing, Mr. Zodac, is excellent for its scientific detail which I greatly appreciate.

I am not a micromounter or sand collector but I derive a great deal of benefit from these columns.

And now, may I give a bit of constructive criticism? There are a few defects in R & M which I believe to be entirely the fault of readers like myself who are not giving you the assistance you richly deserve.

1. First, we do not have enough of the right kind of pictures. Amateurs like myself would gain more from a good photo of a mineral, crystal, or polished specimen than from a page of description.
2. I believe we should keep photos of individuals and groups down to a minimum. Who doesn't like to see their picture in print? I, myself, have been guilty of this in an article I once wrote for R & M. Let's keep such things on the society page of the local newspaper where they belong.

3. When photographing a specimen the authors should include a ruler, pencil or cigarette in the photo so that readers will have an idea of its size. Is that crystal 6 mm or 6 inches?
4. Why not a photo with the "Mineral of the Month" series? Readers, why not let others see that superfine specimen in your collection? Since a color-plate would be too expensive the photos sent in should be selected on the basis of clarity, crystals, and beauty of form.
5. A "Fossil of the Month" column could be developed along similar lines. Photos and line drawings would stimulate interest and create more demand for such a column.
6. Mineral clubs should devote more time to photography especially close-ups of specimens. Photography is expensive, of course, but think how many readers would benefit from one good picture.
6. In conclusion, let's have more good pictures of specimens, scenery, and geological features. Don't forget to include some common object of known size for scale. More maps and simple line drawings will help. Let's get busy and give our editor a helping hand.

Thank you, Mr. Zodac. Your magazine is greatly appreciated by myself, my wife and my friends who are also readers.

Sincerely,
CPL. DONALD STANLEY
Camp Weir APO 43
% PM San Francisco, Calif.
(Japan)

Aug. 12, 1952.

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THE RUBY MINE

By ROBERT C. MacELVAIN

It would have been rough going for a jeep, but for an underslung convertible with only about six inches of road clearance, it was a one-way street to disaster for there was no super-highway to the Ruby Mine.

A few minutes before, I had turned off of a main highway in the southwestern Blue Ridge Mountains of North Carolina on to what seemed to be quite an ordinary country road. At first, the graveled roadway gently curved down to a railroad grade, and further on, it crossed an antiquated, but sturdy, wooden bridge. I imagined that this must be the sort of road of which a rural postman dreams. There was more than just a tinge of Autumn in the air, and that chill crisp of early morning telegraphed icy messages to my toes. The cool, moist air in the creek hollow cloaked the windows heavily with steam as the car rolled across the bridge, and I found myself reaching for the knob and pressing the lever which let the top back. Scenery was all about. The quiet rural countryside was a picture of the type which falls into that class of "undescribable," for here was a setting which only October can bring only to the Blue Ridge Province. A thousand feet overhead, the sunbeams were at war with the rising mist. I was abruptly shocked back to reality when the tires began to slip and spin in the gravel. The road had suddenly turned into a writhing twisting, climbing serpent, which was fast narrowing down to a scant car's width. The grade was terrific, and I had somewhat the feeling of a trapped ant trying hopelessly to climb out of an ant-beetle's trap in the sand. There was no consolation in knowing that a road so poor could not become worse, but by that time, I was ready to kick myself for being so foolish

as to have taken a car upon such a flimsy excuse for a road. Even then, I would gladly have turned back, had turning back been possible, but the car was on a narrow ledge cut into the side of an escarpment. The left wheels hugged the vertical rock wall, for on the right there was only empty space. A sickening clank from the undercarriage reminded me that this was the World's worse spot for an axle to break, but fortunately, it was only a rock bouncing up under a fender. The road gradually became a solid knurled surface of bedrock, being part of the water course of some intermittent mountain torrent until it washingly swept off into the chasm below.

Having crawled along at a snail's pace for over a quarter of an hour, the road was no better, but the grade became less steep and the car was able to chug along in second gear. Ahead, the road started twisting once again, and half way around the next curve there burst another car coming from the opposite direction. So short was the unexpected warning, the two automobiles came to a smashing halt as their front bumpers clashed together. A quick survey revealed no apparent damage other than two severely bent Alabama and Florida license plates. It was impossible for either of us to turn around, and it was positively certain that I could not back-up for a mile and a half. I would have as soon ridden a bicycle blindfolded on a tight-rope across Niagara Falls. We stood there bickering over who was to back-up, and with both of our arguments equally strong, we decided to flip a coin to make the decision for us. As the coin spun into the air, I was trying to remember if I had sent in the last policy premium on my life insurance. The coin hit the bare rock with a resounding clink, and rolled over heads up. Im-

mediately following was the long, loud alphabet of oaths; Mr. Vandegard had lost. So he at the steering wheel, and I riding the back bumper to direct, we slowly coaxed his car back up the rocky, mountain trail.

In about a mile, the trail emerged from under the overhanging trees, and in the clearing, two graceful granite shoulders came up from both sides and met evenly flush with the road. We parked his car here and started after the other. Even walking was difficult, as the whole roadway was a grueling path strewn with boulders, precipices, and slippery, moss-covered rocks where the water table outcropped. Somehow, we managed to drive the other car up the mountain to the wide place in the road.

Of course, each of our first questions was what on earth could the other be doing in such an out-of-the-way, God-forsaken neck of the woods. Mr. Vandegard, it turns out, was a Miami engineer on his vacation which he had dedicated to gem collecting for his amateur lapidary shop. He said that he had come over a thousand miles for the sole purpose of collecting some North Carolina Rhodolite Garnets, "Garnets," I questioned!

I gazed up towards the 5,500 foot peak of this stately mountain and remembered every vivid detail of how I happened to be here.

I had come to this vicinity of the Blue Ridge to search for an old olivine deposit supposed to be near Balsalm Gap, North Carolina. In an antiquated survey bulletin of U. S. Mineral History, I had sometime previously come across a reference to an olivine deposit which was described as containing an abundance of abnormally huge, clear, blue-green olivine crystals six inches in diameter. As I read this, the words practically jumped right out of the page at me, and no matter how many times I re-read that golden paragraph, it always said the incredible same thing. Peridot crystals, a half-a-foot across! I tried to pass over this obvious mistake lightly and forget about it. But after that, every spare afternoon found me in the dusty stacks of the geological

section at the city library searching for more information, for just one thread of plausible evidence that the crystalline olivine was not a myth, but that actually existed. But there was not one clue, not the breath of a single hint. Yet the original text remained as unmistakable as ever. A peculiar crease in the book caused it always to open at the same page, and constantly, those magical words about the olivine whispered a dreamy hypnotic song that lulled me to sleep. Thoughts of the evening emerald perpetually filled my mind, and one crisp October morning I set course for the Blue Ridge Mountains.

While driving south from Asheville, I quite accidentally passed right through Balsalm Gap without realizing the mistake, until about five miles later when I stopped at a little country store near Willets, N. C., to ask directions. When I mentioned something about a quarry, the bewhiskered old storekeeper asked if I were talking about the old Ruby Mine. "Ruby Mine," I inquired? "Yeh," he answered, "I thought that wuz what 'yer talking 'bout." He was obviously not referring to olivine, and with a few questions further, I was getting the directions for reaching the old "Ruby Mine." I had only to take the gravel road beside the store, go down to the railroad tracks, cross the old wooden bridge — in fact — there was no way to get off of the road once upon it. Truer words were never spoken. The old fellow said that he had never been up to the mine which was about four miles up on the mountain, and all he knew was that a caretaker guarded and looked after the property.

Curiosity had its deadly hold on me; the olivine, after all this time, could wait a little while longer.

Vandegard was taking the last puff on a cigarette, and I inquiringly exclaimed once again, "Garnet"!

So now I knew. The "Ruby Mine" was a deposit of the fabulous North Carolina Rhodolite Garnets.

Years ago, these beautiful deep lavender or purple-red stones were one of the most fashionable gem stones in America. But it soon became a case of too much of a

good thing, for the gems were as cheap and plentiful as they were beautiful, and they lost their popularity when the market became flooded. But now, eighty or so years later, the rhodolite variety of garnet is regarded as a rare and exotic gem stone, especially as they are supposed to occur at only one locality in the entire World.

I was anxious to get started on up the mountain, but I paused as Vandegard began: "Before you take off in such a hurry, I might as well tell you what happened to me up there. An hour or so ago, I, just as you, made my way up that _____ road, parked here at the wide place, and walked up the last half mile to the entrance of the garnet property. But it was barricaded and very unmistakably an unhealthy place for any strange visitors."

As he continued with his story, we hardly realized that we had started walking up the road towards the "Ruby Mine." A very few minutes later, we were stopped by eight strands of barbed-wire that were stretched tightly across the road and extending on both sides into the dense woods. Before us was an ominous sign post with a sinister greeting: "Warning — Trespassers will be shot without warning." Through the trees, the old mine dump was just barely discernable beside a cliff face higher up on another extension of the mountain. As we stood there, I knew that we were both recalling other times that we had impetuously violated that hostile variety of no-trespassing signs: of anonymous whistling bullets that part your hair all too neatly just to be caused by the accidental trajectory of some far off hunter's rifle, and of vicious, wolf-like dogs, whose snarling, savage leap is a warning too late to escape their ripping claws and flesh-tearing fangs.

These thoughts slowly turned us away from the barbed-wire, and gravity was tugging at our feet. As we started back toward the cars, a gentle whisk of a breeze disturbed the sleeping trees, and a crisp autumn leaf dislodged from its stem in the bows overhead. We followed to

the ground, its peculiar decent in that pendulum sort of falling motion known only to the leaves. As the leaf touched the ground, our eyes were caught by the flashing sparkle of a small dark rock lying in the roadbed. It was a small nugget of mica schist in which were embedded a myriad of little clear purple dodecahedrons. Rhodolites! The first that we had ever seen. Their sparkle was almost hypnotic. That settled it. We were determined not to leave without a supply of these gorgeous crystals. So we turned once again to the fence, megaphoned our hands, and yelled our loudest hellos until our voices at last became dry and silent. Each hello was a detonated explosion that rocked the mountain stillness, and the echoes bounced from neighboring crags like seismic waves. But there was no response to our fruitless calls; no caretaker appeared to accept our bribes to permit us to pick over the old mine dump.

We struck out through the woods and walked for several miles along a path which we thought would roughly paralleled the fence surrounding the property. It was surprising to find such good paths in the back woods of that uninhabited mountain wilderness, and it was only much later that I found out that those trails were made by the bears which roam about in that part of the woods.

The path gradually climbed upwards, and eventually the barbed-wire fence was in our way again, stretched even tighter than back at the road; our clothes were badly torn in crossing the fence. We ran the remaining distance to the summit of the mountain and scrambled out on to a pinnacle of rock which gave us a view of the entire area. A thousand feet below was the old mine quarry cut into a vertical wall of rock. The dump was like a great talus slope built up to the mine from the decaying mill buildings several feet further below. At that level, the landscape became gently rolling open country covered with broom sage and a few trees. The only sign of life was a thin whisp of smoke that curled up through the trees a thousand yards to

the north. We understood now the vehemence of the no-trespassing sign. Being bushwacked by some stewed up moonshiner wasn't our idea of a very pleasant way to die, and we resolved above everything else, to give that particular area the widest girth possible. Even now, we were much too close for comfort.

The magnetism of the rhodolite reached up for us, and we were half-pushed, half-pulled down the precipitous slope. An ancient rusted pipe line appeared under foot, and believing it to be the old water lead to the extinct mining operations, we followed this easy path on down the mountainside. Minutes later, the pipe line began to flatten out along a narrow, ledge hewn into the naked rock of the mountain face. We were fairly running along until there, abruptly, appeared the end of the trail. Two hundred feet ahead of us was the quarry, but we were separated from it by nothing but the thin mountain air, for the ledge ahead had been sheared off so that only a stub of it remained. The accumulation of boulders far below suggested landslides, and we were all the more uneasy. A free fall through three hundred feet of thin air was a sobering thought, but at that altitude, the thought of the jewels ahead was much too intoxicating. A moment later found us precariously edging along the rocky stub which protruded from the face of the cliff. The footing was tricky and uncertain, and each sliding step was as cautious as a cat stalking a bird. With my face pressed flat against the rock wall, I could see a million little garnets imbedded in the hard, granite-like gneiss. The smooth rock afforded no place for a hand hold, and our palms were of little use as makeshift vacuum cups; to look down would be to fall. Vandegard was hardly three feet behind me when I reached the other side. I grabbed his hand and yanked him that last couple of feet. Neither of us cared to be a human fly, and all of the garnets in the World couldn't have persuaded us to cross that precipice again. Even then, I knew that the task of counting new gray hairs would be a full time job for the next rainy day.

With a hop, a skip, and a jump, we were standing in the site of the old "Ruby Mine." It was like being in Aladdin's cave, wondering where to start and which jewels to pick up first. The bottom of the quarry was flush with the ledge which had widened out considerably, and the dump, as we had seen from above, was a great pile of debris which dropped off from the precipice at the mine and extended to the old milling buildings below.

We were fascinated by this inexhaustible profusion of gems faceted into perfect dodecahedrons on Nature's Lapidary. But it was also strangely evident that neither the quarry nor the dump had been sacked by previous rock hounds.

Knowing that we were there only on borrowed time, we lost no time, but the enchanting spell which the gems held over these two mineral hunters was no excuse for our greed in scooping up the purple stones by the double handfuls. Our enthusiasm was only doubled knowing that at any instant we might have to take to our heels. In a few minutes, our pockets were filled, and even our shirts were stuffed with the garnets and bulging over our belts. I felt something like a crazed gem-craving thief running amuck in a large jewelry store, but this was also the scene of a much greater crime that happened long ago, for the original purpose of this mine had been to tear these lavender beauties away from their home in the rocks, and pulverize them into a purple powder for the abrasive industry.

Most of the stones were a clear, dark, royal purple, though many were pale lavender, and there were some from the wall-rock contact which were strikingly unusual. These contained inclusions of crystallized pyrite, chalcopyrite and magnetite, and were somewhat similar to the aventurine effect. To these more exotic specimens, we soon turned our complete attention, creating new pocket space only by discarding many of our first more hastily gathered garnets. We worked silently with muffled tones, not wishing to challenge whatever our noise might disturb, for anything above a whisper would have shattered that brittle mountain stillness into a thousand splintering pieces. But

carelessness soon walked in as a third and unwelcomed guest, and as I was perched awkwardly unbalanced on some loose rock, my hammer missed its mark in the soft schist. Instead of a low thud, the tempered steel grazed off and exactly connected with the hard gneiss. A swift, bell-ringing note winged its echoing flight across the hills like some wild, escaping bird, given impetus by the fear of death.

The silence which followed lasted but for a moment, for away across the rolling fields below, there answered the long, low, hoarse cry of hounds. Momentarily we were petrified. Perspiration popped out on our foreheads, collected into little cold drops, and rolled down across our faces. From the direction of the howls, there appeared in the tall broom sage, many swirls which became rippling streaks as the invisible curs drew nearer. There could have been no plainer, terrifying picture for two trespassers. All in one motion we each grabbed up the largest boulder of uncobbed garnet-rock we could carry, and never have the soles of my shoes seen such friction as in that initial blast of acceleration. It would have been impossible to get back across the ledge, and to slide down the mine dump would have dropped us into the dripping fangs of blood-hungry mouths, so we lit out across the only route that was open. The ledge ahead sped by beneath our feet and faded away as it blended into a steep, heavily overgrown slope. There was not the slightest semblance to a path, so we headed north around the side of the mountain. The slippery sticks and loose stones beneath the leaves made for rough going, but fear pumped speed into our veins, and gave us that wild animal variety of running which soon left the "Ruby Mine" far behind.

I have no idea how far we ran, but I was suddenly halted by the sting of smoke in my eyes. As I paused to rub out the burning, I was horrified to see directly below me through the trees, the all too familiar apparatus of a home-made distillery. With reddened eyes, I searched frantically around me, certain that I was framing the bead on some

wry moonshiner's rifle. Vandegard's running footsteps in the dry leaves sounded like some miniature explosions, and he came to such a sudden, unexpected stop behind me that he lost his balance, pitched forward, and fumbled his heavy rock as if it had been a greased football. As quickly as a cat grabs a mouse, gravity snatched the rock in mid-air, and yanked it bouncingly down the mountainside. It thundered through the underbrush like an alpine avalanche; the noise hurt our ears. We waited for no answer this time, but took off like two big birds, and ran until we were exhausted. My sixty pound chunk of garnet schist soon weighted a ton to my aching arms, and our many cuts and bruises suddenly began to hurt. We stumbled on though, and were soon, once again, tearing our clothes going over the barbed-wire fence. It was a great relief just to be on the other side, and we never turned around to look back.

A short while later, we had both cars safely back beside the friendly pavement of Highway 23. When we examined closely, the garnet boulder which I had carried down from the mine, it proved to be the best specimen of the lot as it was almost a solid cluster of deep lavender crystals. With a chisel, we split the specimen into two parts. So each with a half boulder of rhodolite garnet schist for a matrix specimen, and pockets crammed full with the precious purple stones, we shook hands and said goodbye.

It was dusk as we drove away, and the sun was just disappearing behind the mountains in the west as if to hide its jealous face from the sparkling rhodolites on Ruby Mountain.

Oh, yes, and about those giant peridots. They're not a myth at all, but then, that's another story that happened another day.

The End

Absolutely No Comparison!

Editor R & M:

Please add to your long list of grateful subscribers my name. There is absolutely no magazine anywhere to compare with ROCKS AND MINERALS in my estimation.

Dorothy L. Hays
Des Moines, Iowa

Oct. 22, 1952.

RAMBLINGS OF A ROCKHOUND

By R. F. HENLEY

4075 Nineteenth Street, San Francisco 14, California

Spring had arrived, and after a long wet winter Clarence Crane and I have both been itching to head for the hills. Clarence sold the "jeep" and bought a jeep station wagon but kept the trailer. So on March 31, 1952, this time with another "fossil" whom we will call "J. R." we headed straight for the Aurora Quicksilver mine in San Benito County, Calif. I wanted very badly some more of those stringers of cinnabar with spots of fluorescent calcite (see *R. & M.*, page 797, September-October 1948) but the road to that spot was still impassable from winter rains so we had to content ourselves with some fine dolomite and cinnabar but not fluorescent. We also found what I take to be drusy serpentine, which will make nice cabinet specimens. As the altitude was over 4,000 feet we did not want to spend the night there as it was still rather cold so we dropped down onto Clear Creek beside the USGS bench mark indicating 3,358 feet we prepared supper and camped under the stars. That creek well deserves its name; so inviting you just wanted to drink the whole creek.

Next morning after breakfast we were packing up leisurely when J. R. complained of being dizzy and suddenly collapsed. It was no April fool joke. We

were quite alarmed but Clarence spread a rug in the sun and after resting an hour or more J. R. was able to get up and move around but as our trip was planned for some rough riding it was evident he should not go on, so back we went 175 miles to take him home to Oakland. Clarence and I then started out again next morning, camping one night on the road and next day arriving at the home of Oscar Wahlstrom (as fine a rock hound as you ever met) where we stayed one night. Oscar's home is in the little town of Argus, Calif., adjoining Trona where most of the world's supply of potash is produced. We did a bit of trading, called on our old friends and then started by way of the ghost town of Ballarat and up Goler Wash a part of which is the toughest road I ever traveled. It reminded me of the story of the Pied Piper and how the mountain side opened up when he led the children of Hamlin town to the tune of his pipe. Once in the wash we were quickly out of sight and could not see ahead or behind 100 yards but were between two sheer walls with a narrow road or rather trail over broken stone. Several bad spots all close together were the worst I ever traveled and I held my breath for fear the rough rocks



The jeep and Clarence Crane in Goler Wash, Inyo County, California.

would cut the tires but we got safely through.

At the head of the wash where we came out into the open we spent three nights in the guest house of Mr. Myers, a school principal of Albany, California, who has a summer cabin and a little guest house for passers-by with a sign "HOME OPEN" and there I "celebrated" my 81st birthday but no cake and no candles—just a mulligan stew. It is very much an out-of-the-way place but sometimes used by wayfarers who never abuse his generosity. He took up a homestead in 1931 and filed on the water rights which consist of a spring which flows at a uniform volume filling a two inch pipe and always at a temperature of 72 degrees winter and summer. It evidently travels many miles underground then disappears and is no doubt the source of several other springs farther down the wash. During our stay we made a trip over a ridge to Wingate Pass where we secured some jasper of fair quality and saw a number of wild burros which are increasing in numbers and driving the big-horn sheep to higher ground as they will not drink at the springs the burros use because the burros contaminate the water. Being the Easter week holiday our host was there and had promised us a burro steak but his son's rifle was unusable because the cartridge clip had jammed. So no burro steak.

Then back down the Goler wash and before reaching Ballarat we stopped at a broad alluvial plain and gathered some large blocks of pink calcite with the surface as rough as sandpaper. I took it to be the effect of sand blasting by the wind but the geologists at our Division of Mines say that rain will do that on calcite. That plain I take to be at least half a mile wide from the base of the steep Panamint Range which it stems and which must rise several thousand feet above the plain. Only a cloud burst could wash those big stones down the mountain and so far out on the plain and in summer cloud bursts are not strangers to that area.

Leaving Ballarat we headed for Death Valley to get some more of that fine travertine which when cut with the bands looks like ivory soap. I once made a paper weight from it and one of my friends put it to his nose to be sure I was not "faking." The vein is in a bank by the roadside (see picture, page 36, R. & M., January-February, 1950) and though many cars passed while we were working only one stopped. It was occupied by George R. Smith, wife, and daughter, date growers and rockhounds of Coachella, (and how I do love those California grown dates which I buy in San Francisco for only a trifle more than the price of dried prunes and which I eat every day). The Smiths had an ap-



Panamint Range and the broad alluvial plain near Ballarat, Inyo County, California.



Onyx ledge, Argus Range, Inyo County, California.

pointment in the Valley and could not stop long but we handed them a few specimens and were invited to come down and camp on the date farm. I hope to do so. There are many collecting areas almost within eyesight of that place.

We spent the night on the desert in Death Valley and next day back to Oscar's at Argus. The following day April 11, we went to the famous onyx deposit at the base of the Argus range overlooking Panamint Valley but had to be content with the red matrix that others did not want but still makes fine book-ends and ashtrays. However we secured some of the

banded green and red onyx from our friends. We also visited Oscar's aragonite claim and secured some blocks large enough for book-ends and ashtrays. This finished the collecting and after resting up for a day we pointed the jeep toward home.

After resting at home and catching up with correspondence and household chores, I was off again but this time by myself. The California Federation was to hold its annual meeting and mineral show at Angels Camp June 20, 21 and 22 (no angels—it took its name from a man by that name about 100 years ago during



Oscar Wahstrom's aragonite claim. The writer "bluffing" at using the sledge.

California's gold days) and the directors were to have a meeting April 19 and 20 to which members were permitted to attend. There were more wives, mothers and just plain members than there were directors but all were welcome. The big inducement was several field trips that were planned for directors and others. Just four miles away was the famous Carson Hill which produced \$60,000,000 in gold during the past 100 years and it is not all gone though not now being worked because the mill burned and our Government moved the machinery to some other location. But those with the energy to climb the hill found quartz crystals, a few found gold bearing quartz, and some mariposite with dolomite crystals on top.

The next trip was at night to the quarry of the Calaveras Cement Company for fluorescent calcite. It was a dirty dusty trip because a bridge had washed out forcing us to detour over unpaved roads, but we did find what we went for. The last trip was to a new location for

dendritic opal near Valley Springs (see page 486, R. & M., September-October 1949). Nicely marked but mostly badly fractured and full of holes but still some good pieces to be had. There was one sad note in connection with the directors' meeting. During the noon recess and just after lunch the director from Ventura, Mr. L. D. Van Delinder, without a moment's warning suddenly collapsed and passed away. In resuming the meeting there was a minute of silence in respect to Mr. Van Delinder. Angels Camp was made famous by Mark Twain as the locale of his famous story of the jumping frog contest. The contest is now an annual affair and draws thousands of visitors to the county fair grounds where the contest is held and where the mineral show will be held, June 20, 21 and 22. That is mid-summer and having read Shakespeare's "Mid-summer Nights Dream" I shall be careful not to stay out after midnight.

COLLECTOR'S KINKS

REMOVING FOG FROM FILTER GLASS

To many mineral collectors using short wave U. V. lamps it will come as a surprise to learn of a simple and safe method for removing the fog or polarization which accumulates on both surfaces of the filter glass.

My lamp lost a lot of its brilliance and was badly fogged and being of an experimental nature, I took the glass out of the lamp, laid it down on a worn blotter placed on a perfectly flat surface. The purpose of the blotter was for a cushion and to prevent the glass from slipping around.

I hunted up a small piece of very worn 180 grit carbo grit sanding paper and began to lightly sand the inside and outside surfaces, first one side and then the other. This operation was performed dry since dampness is harmful to this type of filter glass, and the rubbing was done very lightly to keep the scratches almost imperceptible. It removed the fogging

completely in a very short space of time and did not dull the surface enough to cause any worry.

I had some Magic Lens Tissue handy for cleaning my eye glasses, so I figured that ought to clean up the filter glass for a final finish. I found that the frictional heat generated with brisk rubbing put most of the original shine back on the glass. I was careful not to rub too hard for that many have broken the glass.

The glass was replaced in the lamp and now I can enjoy my fluorescents again. Believe it or not, it works as good as new again. The whole operation took less than a half hour.

A word of caution: do not use new sanding paper, wear it down on some hard surface first and keep the filter glass flat.

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WANDERINGS IN BUSHMANLAND, SOUTH AFRICA

By JOHN W. WEITZ

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If you are a collector of minerals or desert succulents then Bushmanland is a "must."

It is that territory bounded on the North by the Orange River and on the South by a line drawn from Loeriesfontein to Brandvlei. The Western boundary may be represented by a line through Loeriesfontein to Goodhouse on the Orange River and the Eastern by a line from Brandvlei to Keimoes. No one can say with certainty where Bushmanland begins and ends. It is one of those subjects which lead only to interminable arguments.

Geologically speaking, Bushmanland is divided into two parts. The Southern portion is made up of Dwyka Series (Tillite and Shales) of the Karroo System, while the Northern region is composed of granite and gneiss including schists and granulites as well as Pre-Damara, Damara, Kheis, Kraipan, etc. of the South African Primitive Systems.

Bushmanland is so called because in the early days of the Cape Colony, this territory was a stronghold of the Bushmen. These primitive people never settled down in tribes, but roamed over the veld in small family groups of a few dozen or so individuals. They did not breed animals or till the soil, but lived mainly by hunting game which they killed by means of tiny bows and poisoned arrows. These small brown-skinned men were the world's best trackers and masters in the art of concealment and camouflage. But they were also a real menace and many early pioneers were murdered by them.

As more white people and Hottentots trekked into what is now Bushmanland the herds of springbok and other game gave way and with them the Bushmen moved on into even more desert-like and uninhabited regions.

Today, you would have to go into the remotest parts of the northern Kalahari Desert and even further north in South West Africa if you want to look for bushmen. Even then it is by no means certain that you will succeed in catching

a glimpse of a single full-blooded bushman.

The climate of Bushmanland is extremely harsh and no visitor should undertake a trip to those parts during the summer months, that is, from October to April. During this period the sun beats down with implacable fury and shade temperatures of 120°F and over are common — that is, if you can find the shade! The best time of the year to visit Bushmanland is between the winter months of May and August for, although the nights are bitterly cold, the days are always warm and sunny. The average annual rainfall in Bushmanland proper is only about 1½ inches, hence it is a semi-desert region and the roads are always in extremely bad condition and very dusty.

Now, to the ordinary tourist this will appear a most inhospitable and unattractive country, but for the true mineralogist it possesses a fascination such as he will not often experience in other parts of the world and he will tear himself away with difficulty from the thousands of pegmatites which always seem to beckon to the enthusiast and invite prospecting.

With a high powered car one could reach the Orange River in a day from Cape Town, but no collector in his right mind would dream of making such a rushed and arduous trip of 420 odd miles in one day. Due to the long distances between farms and habitations, it is advisable to carry plenty of blankets, water and food — just in case!

In July of 1951 I left Cape Town for Bushmanland accompanied by my wife and our foxterrier. We drove in easy stages to Clanwilliam and thence over the Pakhuis Pass to Calvinia. Here we stayed on a farm for a few days. This is Ecca shale country and has much of interest for the palaeontologist but little to attract the mineralogist. From here we drove 200 miles via Brandvlei to Kenhardt. This latter town is the official headquarters for Bushmanland. Near

Kenhardt there are several important deposits of Iceland spar and some good optical grade material has been obtained from this district. I saw in one quarry a milky white rhombohedral crystal half the size of a sedan car!

From Kenhardt to Keimoes on the Orange River is a fairly easy run of 50 miles. Here the river is split into five channels with fair sized islands between and one has to cross five bridges in order to reach Keimoes which is on the North bank and in the Gordonia district.

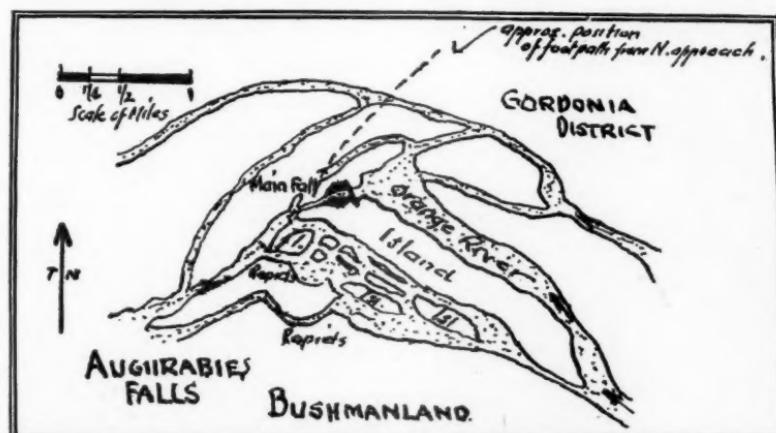
A great deal of active prospecting for beryl is now going on in the North Western territories. Individual deposits are not large but in the aggregate the production from these territories amounts to several thousand tons and most of this goes to the U.S.A. On a farm about 16 miles from Keimoes the farmer showed me a single Beryl crystal which I estimated to be five feet long and $1\frac{1}{2}$ feet thick. I examined a number of pegmatites on this farm and found the following minerals: Garnet (almandite), Rose Quartz, Tantalite, a great deal of Epidote, Black Tourmaline, Muscovite and Iceland Spar (mostly milky-white).

Kakamas, the Dutch Reformed Church Settlement about 30 miles down the river from Keimoes, was our next stop. Here I made a number of helpful contacts and

secured some interesting specimens including some good quality Rose Quartz, Amazonstone and a number of radioactive minerals of the Euxenite series. I have sent off some of the latter for correct identification by X-Ray analysis as these minerals are difficult or, should I say impossible, to determine by ordinary blowpipe methods. I suspect however, that they are Euxenite, Fergusonite and or Samarskite. Other minerals collected are Triplite, large Magnetite crystal, Apatite, Sphene, Muscovite and Beryl.

About 23 miles down the Orange River from Kakamas is the Aughrabies waterfall. Although the late Edward C. Rashleigh, an authority on waterfalls placed the Aughrabies Falls near the top of his list of the world's greatest waterfalls, comparatively few people have seen this waterfall. Perhaps this is because there are no hotels, resthouses, bridge or easy access to the falls from the north or south banks (See Sketch).

This is what Rashleigh wrote of the Aughrabies Falls. "The Aughrabies is not beautiful like the Victoria Falls but is terrible and intensely impressive, and the whole effect is heightened by the savage aspect of the canyon itself whose walls, scarred and riven and sheer, seem to have been cleaved asunder by some appalling lightning-stroke." We drove over a very



Map showing location of Aughrabies Falls in Bushmanland, South Africa.

badly corrugated road to the farm "Omdraai" (meaning "Turnabout") and then continued for a further four miles to where the road ends abruptly. There we parked the car near to a hut occupied by a coloured family — the only human beings on the north bank of the falls. Here we hired a guide and with him in the lead traversed two channels of the Orange River (then dry), scrambled over granite boulders and plodded along faint footpaths in river silt so fine that each footstep raises a miniature cloud of dust. We covered about $1\frac{1}{2}$ miles in this fashion when suddenly we saw a maze of granite boulders some the size of a city block and the thunder of the falling water seemed very near. We knew then that we were close to the point where we would catch our first glimpse of the waterfall. As it turned out the flow of water was disappointing as this was a time of dead-low water in winter and probably did not amount to more than 100 cusecs. I have read somewhere that in times of flood when it is possible to see the falls only from the air, the flow may be as great as 500,000

cusecs — a truly remarkable variation. The falls have only one thing in common with the Victoria Falls and it is this: the level of the country is practically the same above and below the point over which the water plunges. But while the Zambezi drops into a chasm at right angles to its course, at Aughrabies the Orange River plunges into a canyon 480 feet deep, which is a continuation of the river bed sunk down or opened up into the earth — in this case granite.

As there is nothing to preserve perspective — just a wilderness of granite — it is difficult at first to realize that Aughrabies is more than 130 feet higher than the Victoria Falls and 305 feet more than Niagara's drop of 175 feet. The pool below the falls is in solid granite — over 100 feet deep. Some people believe that if this could be dredged a rich haul of diamonds would result. It is, however, most unlikely that the terrific turbulence of the water would allow of any settlement to the smooth bottom of stones as small as diamonds. It is, of course, true that diamonds are found all along the lower reaches of the Orange



Aughrabies Falls, Bushmanland, South Africa.

River and where it enters the Atlantic Ocean there are located the rich diamondiferous alluvials of Alexander Bay (State owned) and Consolidated Diamond Ltd. in South West Africa.

Above and below the falls the silt-laden waters of the Orange River has scoured out potholes in the solid granite varying in size from a football to holes large enough to make a fair sized swimming pool. The bottoms of these potholes are lined with waterworn pebbles consisting for the most part of jasper of various colours and shades — another find being a nice pebble of golden coloured silicified asbestos (erroneously called crocidolite).

While our guide was most polite and helpful, he seemed very bored and we could not help feeling that he looked upon all visitors to Augrabies as completely mad or nearly so!

Our next objective was Pofadder in the heart of Bushmanland and about 90 miles due west of Kakamas. This is a very lonely stretch and in all we saw only three farms along the route. But as if to compensate for the loneliness of the road there was one wide valley where the scenery was truly magnificent. The white grass of the veld, a flock of black karakul sheep and purple-red hued mountains in the distance with isolated conical hills of pitch black dolerite boulders in the foreground — a scene such as would have gladdened the heart of any artist!

Pofadder (Puffader — a South African snake) is a small town of windmills. I have never before seen so many windmills in such a small area as at Pofadder. The reason for this is that the only available water is pumped from boreholes in a dolomite formation of limited extent — hence the existence of the town.

I was lucky to find Mr. Niemoller, Jr. in the town for his family owns a farm of some 127,000 acres in extent along the Orange River near the small settlement of Onseepkans and in addition to farming activities, he produces also a

number of minerals principally Scheelite, Wolframite, Beryl and Bismuthinite. The latter mineral he found in one pocket which netted him £3,000. He gave me a fine specimen of this high grade Bismuthinite and also a few small pieces of Bismutite from the same deposit. The following day he took me to a farm nine miles out of Pofadder and there I located some Euxenite with the aid of my small Geiger counter. Other minerals collected included the following: radioactive Gadolinite, radioactive Allanite and Corundum.

I discovered too late that long distances and bad roads are serious handicaps to the collector since they make considerable inroads into one's time schedule. I have accordingly decided tentatively to return to Pofadder next year and to spend at least 14 days with Mr. Niemoller on his farm, which, incidentally, is a ride of 30 miles from one boundary to the other!

Leaving Pofadder we had another grueling drive of 110 miles to Springbok (Namaqualand) which town is a few miles from the Copper Mines of O'Kiep, Nababeep and Concordia. I did not go to the mines this time as I had been there twice on previous occasions. I, however, contacted one of the principal buyers of minerals in Namaqualand and he kindly allowed me to help myself to some interesting specimens which included the following: Monazite, Columbite, Beryl (water white at one end and aquamarine at the other), Massive Pink Tourmaline from S.W.A., Amblygonite, Euxenite and Scheelite.

And so back to Cape Town and home. But I shall return to Bushmanland next year because I want to see more of those wonder pegmatites with feldspar crystals more than a foot long and then also, there are the gorgeous sunsets which transform that arid land from a short while into pictures of indescribable beauty.

COLORADO TELLURIUMS

By ROBERT D. ROOTS

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The following article is by one with no technical training and is entirely from a collectors' view point. Much of it has been picked up listening to others and from buying various tellurium specimens. None of it has been taken from books. I will tell a few of the stories I have heard and leave it to you to believe them or not.

Roughly speaking what is called the mineral belt of Colorado runs from northeast to southwest across the State. Telluriums of many types have been found in many parts of this belt as well as in the outlying branches. A few telluriums have been found in only one or two places, notably those of copper. We can not hold that against the state as the copper tellurium have only to my knowledge been found in two other places in the United States. The tellurides of gold are the most common and have been found in many places throughout the mineral belt.

Will give the names of the different telluriums and after this refer to them by name only. The most common in order are the gold telluriums: Petzite, Calaverite, Sylvanite and Krennerite. The Silver tellurium Hessite that often grades into Petzite. Coloradoite, Mercury telluride. Rickardite and Weissite both copper telluriums and often found together. Nagyagite, sulpho-telluride of lead and gold. Altaite, lead telluride, and Melonite, nickel tellurium. I believe there are others but have not come across them as yet. Pure tellurium is rare.

I believe Tellurium was first found in Boulder County, just where and when I do not know. I have several specimens from there as follows: pure Tellurium, Altaite, Sylvanite, Calaverite and Coloradoite. Most of these are old but the Coloradoite was mined about four years ago. One of the stories told me by my assayer friend was about the man from Boulder County, who came in and said he had a two foot vein of Altaite and the darn stuff was too poor to mine for lead.

Then tellurium was found in other places. In Gilpin County at the War Dance Mine where it had been put over the dump as pyrite. When it was found that this was Sylvanite, the dump was re-worked and now if you may be able to find a specimen you will surely earn it. This mine also had some fine specimens of Petzite, little black xls many of them strung on slender gold wires. I was lucky in getting a number of these as I thought they would make wonderful micromounts.

My first Hessite was a gift from a miner who gave it to me from a window edge of a mine at Leadville. He said it was a lead-zinc ore but it did not look right to me and I had my friend the assayer test it for me. It was Hessite with a little Argentite and as an impurity had little flakes of gold on one side. I had to saw it in half in order to get it in both the Gold and Silver drawers. I had read an article on the Silver Cliff area at Silver Cliff, Custer County, and it mentioned the galena-like Hessites found at the Geyser Mine. I had a chance to buy two or three small specimens of this material and a friend in California tested it for me and it was Hessite. There are many stories told of the Geyser Mine. It was sunk by a man who expected to hit a real body of ore and could not be bothered by a four inch vein of Ruby Silver and Argentite. Only two small shipments were made from the mine and the rest went into the dump. It is still possible to pick up rich silver specimens of Argentite from the dump. The Geyser bottomed at 2650 feet and was then the deepest shaft in the State. Then the old May Day Mine in La Plata County produced a lot of rich Silver ore. Much of this was Hessite graduating into a mixture with Petzite. When I took a sample of this ore that I got from a friend in to be assayed and went back later to get my returns, the assayer said, "Bob, where did you get this ore?" When I told him the May Day Mine he said, "That is one place where they got ore like that." The assay was Gold 50%

oz. and Silver 6,403 oz. to the ton. In spite of the rich gold content when you look at the proportion of gold to silver content I think it would be classed as Hessite with Petzite. The vein in this mine is said to have faulted about 4,000 feet in. Many other mines in La Plata County had rich Sylvanite ore. Then closer to home the West Gold Mine near Idaho Springs in Clear Creek County had a rich body of Sylvanite and Hessite ore. It is my luck that this was so long ago that I have been able to get only a few specimens from a friend who had saved a small box of them. All he has left now is one or two that he is keeping for himself.

Now for the rarest of the telluriums. Those of Copper found at the Good Hope Mine at Vulcan, Gunnison County and the Empress Josephine Mine at Bonanza, Saguache County. Rickardite and Weissite are on the want list of most collectors. I visited the Good Hope Mine several years ago but was unable to find even a good piece of Pyrite. The dump was so old that the surface had leached and the surface of the dump in certain lights had almost a satin look. I believe this leaching has gone deep into the dump and one would be very unlikely to find anything by digging. I know where there are about ten specimens in different collectors' hands but try and get one. Well I have lots of time so there is no hurry. At least I have a small Petzite specimen from there. I had much the same luck at the Empress Josephine Mine. I have seen one small specimen of Empressite, a gold tellurium found only at the Empress Josephine Mine.

I have been saving Cripple Creek, Teller County, for the last as if there is any place in Colorado that could be said to be tellurium country it would be Cripple Creek. In fact much of the ore is tellurium carrying gold. I have seen many beautiful specimens of xlized Sylvanite from there. To most eyes Sylvanite does not make pretty specimens but one small 1 1/2 by 2 that I saw would make any collector want to have it in his collection. A rounded top with bright silver

fences running in all directions over the hill. A dream specimen I may have confused some people by always saying Sylvanite. The reason is that the miners class Calaverite, Krennerite and Sylvanite all under the name Sylvanite. I had a 3 by 4 specimen in which I saw a parting; on breaking it along this seam it broke into two flat pieces with a beautiful Sylvanite dentrite all the way across the piece. From a collector's point of view Calaverite is the most common followed by Sylvanite and Krennerite with a little Petzite thrown in to make it interesting. If that is not enough throw in a little free gold. Much of this free gold is called rusty gold and is a pseudomorph after Calaverite. This makes a good specimen but is a little harder to get. By roasting very rich specimens of Sylvanite the heat will drive off the tellurium leaving the gold in little balls on the surface of the specimens. The heat must be applied slowly and cooled the same way. The miners used to do this in their stove and then pan the ashes to recover the gold they lost. I have seen the balls over 1/4 inch across and almost cover the surface of the specimen. Here is found Melonite, tiny bronze scales on Calaverite quite rare but beautiful under a hand glass. Nagyagite not pretty but interesting for its composition. I went overboard a while back over what I hope is a new one. A copper gold tellurium that they tried to call Walkerite. The sad part of this is that the name is already in use for another mineral so now I have what is said to be a new mineral but it has no name. I was informed that it would be a year or two before they gave it a name but that is all right I am not going anywhere.

There are many other places in Colorado where tellurium has been found. Might tell a story about one of them that a friend told me several years ago. This was in Silverton where they hit a rich vein of Coloradoite and shipped a carload for its mercury content. This was in the middle of one of our hot spells and when the car reached the smelter the mercury was gone. And I think with that I will close this article.

A GENERAL SURVEY OF THE NON-FERROUS METALLIC ORE DEPOSITS IN THE SOVIET UNION

By RICHARD S. MITCHELL

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Introduction

The Soviet Union, like all modern countries, depends upon iron as the basic metal of its industries. Iron and steel form the metallic foundations of modern civilization. However, in our present specialized type of civilization we also need building blocks of many substances to place upon this ferrous foundation. The purpose of this paper is to list some of these metallic building blocks and to give a general description of their distribution in the Soviet Union. No special emphasis will be placed upon a quantitative measurement of the reserves or production since recent figures are nearly impossible to obtain.

The USSR is well provided with mineral ores, especially in areas where there are old rocks near the surface. There are few Soviet achievements of which the Russians are more proud than the charting and developing of these vast mineral resources. Czarist Russia was dominantly agricultural—there existed only light industries, such as textiles. The industrial task of the Soviet Union under the five-year plans in 1928 was to overtake and surpass the capitalist world. By 1938, the Soviet Union claimed to hold first place within Europe in total industrial output. Therefore, they had nearly reached the goal of 1928. Whether this is actually true or not is of little matter in this discussion, but in any case it is obvious that great strides were taken in this period to develop the mineral wealth. For a general idea of the advancement that was made, one might consider the production figures of steel from 1913 to 1937 (graph is facing this page). The trend of the steel production graph is also a general picture of the increase in production of other metals such as manganese, copper, lead, etc.

It is now clear that the Union is one of the richest nations in the world, and that its coal, oil, iron, base metals, precious metals, and salts are of vast extent.

The following non-ferrous metals will be discussed in this paper:

Manganese
Copper
Lead
Zinc
Aluminum
Nickel
Gold
Platinum
Chromium
Tin
Tungsten
Cobalt
Magnesium
Mercury
Molybdenum
Silver
Vanadium

The reader must keep in mind that recent information on the USSR is impossible to obtain, and that what information is available is not necessarily accurate.

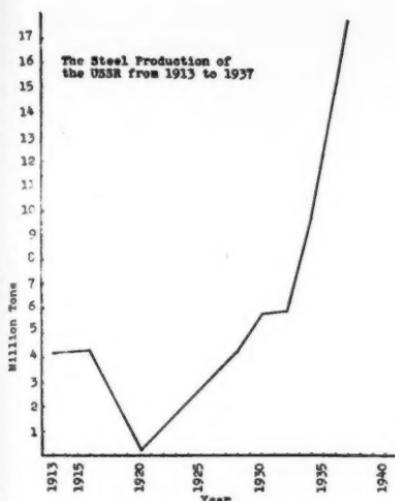
Because the writer is by no means an authority on the Soviet Union he had to obtain his data through research in the literature. The main references are listed at the end of this article.

Manganese

Manganese is the most essential metal used in ferro-alloys since 14 pounds are required in the manufacture of each ton of steel. The Soviet Union leads the world in reserves, which were estimated at 700,000,000 tons in 1936. The chief areas follow:

Nikopol (Nichopol) in the Ukrainian SSR. The manganese deposits are situated on the Dnieper River 100 miles from its entrance into the Gulf of Odessa. The ore bodies consist of sandy clay stained with manganese oxides which contain nodules of psilomelane and pyrolusite along with wad and polianite. The best class of ore contains 57% manganese.

Tchiatouri (Chiaturi) in the Georgian SSR. One of the largest deposits in the world lies in this region near the Kvirilla



River. The reserve which consists of 110,000,000 m. tons is 3 feet thick and 22 square miles in area. The ore consists of stratified pyrolusite and psilomelane along with wad. The texture of the ore is from oolitic to botryoidal. The ore is soft and averages from 40 to 45% manganese. Manganese is one of the three most important mineral products in Georgia along with oil and copper.

The *Podolia* (the Gaisinsk district) deposits which are 220 miles by rail from Odessa consist of 30 square miles of high grade pyrolusite ore.

The *Urals* (Cheliabinsk River, at Verkhne-Uralsk and Magnitogorsk, Urazovsky, and Nazgalovsk and Auyasazovsky) also have manganese deposits. The manganese ore contains only about 12% Mn.

Bashkir ASSR, the *Azov-Black Sea Region*, *Kazakh ASSR*, and *West Siberia* also have deposits.

Lake Baikal has manganese on its western shores and on *Olkhon Island*.

The distribution of the production of manganese ore in 1937 was as follows:

% of total Mn ore in USSR

Ukraine (Nikopol)	35%
Caucasus (Tchiatouri)	57%
Bashkir Republic	5%
Siberia	2%

Copper

The copper reserves were greatly enlarged by exploration during the five-year plans, but the quality of the ore is poor.

Kazakh ASSR. The most important center of copper mining is near Lake Balkhash in Kazakh ASSR.

a) Kounrad, near the north shore of Lake Balkhash is a leading mine. The ore exists as porphyry copper.

b) Djezkazgan, farther west than Kounrad, is very rich in copper. This is one of the largest deposits in the Union. The ore averages 3.5% Cu and consists of chalcocite, pyrite, and bornite.

c) Almalyk is another district in this area.

In 1941, 100,000 tons of copper were refined in Kazakh ASSR.

The *Urals* were formerly the principal copper area, with numerous deposits of varied types, chiefly of chalcocite. Ore bodies are found over a distance of 500 miles from the largest mine at Krasnouralsk in the north to Orsk in the south.

Bliava—this is said to have reserves of 3,000,000 tons of metallic copper in an ore averaging 4% copper.

Armenian SSR. At Allaverdy and Agarak the ores occur in porphyries and tuffs and form thick stocks impregnated with pyrite, chalcocite, and bornite. Agarak is a copper-molybdenum deposit.

The *Altai Mountains* contain copper at Ridder and Sokolny, Zyrianovsk, Belousovsk, and Zmeinogorsk.

Lead and Zinc

The lead and zinc reserves represent 11 and 19% of the world's totals, respectively. Because the two elements are so closely associated in nature they will be considered here under one topic.

Sadon (Sadonsky) in the Caucasus is the largest lead-zinc deposit in the USSR. This is a mesothermal deposit of argentoferous galena and sphalerite associated with copper and pyrite. Around 20,000 tons of lead and 10,000 tons of zinc are produced here annually.

The *Far Eastern* district includes Te-tiukhe and Vladivostock. These deposits contain galena, sphalerite, chalcopyrite, arsenopyrite, tetrahedrite, chalcocite, and calamine.

Kazakh ASSR area:

a) Turlansky group comprises deposits in the Karatau Mountains, the Ache-sai, and the Kara-Kan-Say deposits. These are lenticular metasomatic hydrothermal deposits.

b) The Altai group consists of Ridder and Sokolny, Zmeinogorsk, Belousovsk, and Zyrianovsk.

The *Kielce* district in Poland has provided the largest proportion of the zinc produced in European Russia. Calamine was formerly the main mineral. When this was exhausted lower grade sulphide ore was mined.

Lead ores exist at Akmolinsk and Semipalatinsk in the *Kirghiz Steppe*. These ores contain 40 to 78% lead, some copper, and 80 oz. of silver to the ton.

Nerchinsk in eastern Siberia has reserves of zinc and lead.

Some lead mining is carried on in the *Ural Mountains* chiefly in the North Sverdlovsk district. The ores contain sufficient gold and silver to make the lead mining operations profitable. Zinc is also mined in these mountains.

Regular lodes of lead of great size were also found near the source of the *Kuban River*.

Aluminum

The Soviet Union is a major producer of aluminum, ranking third in 1940 with an output of 54,900 tons.

Tikhvin east of Leningrad is apparently the main deposit of commercial value. It is from this district that the major part of the ore comes which is used by the aluminum works at Dniepropetrovsk. These works utilize electric power generated by the Dnieper power station. The total calculated reserves at Tikhvin are 8,290,700 m. tons (1929). The bauxite here varies from white to violet in color. It contains considerable amounts of oolites consisting of aluminum and iron oxides. Al_2O_3 is present in amounts from 45 to 70%.

The *Urals* have large deposits of bauxite. The Mesozoic deposits include Sokolovsky in the Kamensky district; Pershinsky in the Rzhevsk district; and Alapayersky. Krasnaya Shapochka in the Kabakovsk (Nadezhdinsky) district is Paleozoic in age. In the central Urals there are high grade ores near Sverdlovsk.

Bashkir ASSR consists of the Maloyazsky region.

The *Kola Peninsula* has huge deposits of nepheline which are also worked for aluminum. A large plant began operation near Kandalaksha in 1939.

Cheliabinsk district consists of the Siatka and Katorsky regions.

Nickel

The output of 3,000 m. tons in 1938 was barely adequate for the Russian domestic needs, but enabled the Union to rank third in the world output.

The *Orsk-Khalilovo* region in the southern Urals consists of a number of deposits. Three of these are Aktiubinsk, Novo-Akkerman, and Aidiyrla. These deposits consist of secondary silicate nickel ores derived from the weathering of ultra-basic rocks.

The *Kola Peninsula* and *Monche Tundra* have a low-grade nickel complex which is under development. The ores are sulphides, consisting of pyrrhotite and pentlandite. Some copper and iron are also produced here.

Ufalei, in the Sverdlovsk Republic near Chelyabinsk, is a deposit composed of garnierite. Ten tons of nickel are produced each day (1938). The reserves are small. The first nickel works in the Soviet Union were erected here in 1934.

Near the Yenessei estuary at *Norilsk* (east of Dudinka) some nickel is mined.

Gold

It is estimated that the Soviet Union produces over $4\frac{1}{2}$ million ounces of gold annually. This figure would put Russia second only to South Africa in the production of this precious metal.

Because the major portion of the gold output is obtained by dredging operations, and little or none comes from deep-level

mines, the production depends on a wide distribution of gold occurrences. The gold industry is divided into twenty-six Trusts which group under their control all the mines and alluvial workings in their particular local area. The chief trusts are the following:

Lena Gold Trust. The Lena basin is the center of gold production. Electric and steam dredges are used in excavating the deposits. These dredges operate during the whole year. Bolshoi, Dogaldyn, Right Dogaldyn, Left Dogaldyn, Yezhov, and Vassilyev are new fields in the region.

Balei Gold Trust. This deposit was first worked in 1929. The gold occurs in quartz and calcite stockworks in granodiorite. The veins are rich but narrow. The gold production of 140,000 oz. in 1934 was doubled in 1935.

Darasun Gold Trust. At Darasun gold occurs in sulphide veins in association with pyrite, arsenopyrite, chalcopyrite, and galena. At Woskresensk quartz lenses occur in schist country rock, gold being associated with sulphides and tourmaline.

Kochkar Gold Trust. Gold occurs in a coarse biotite-chlorite schist. This is near Sverdlovsk in the Urals.

Mias Gold Trust. The gold is found in lenses and veins in schists which originated as volcanic tuffs. A nugget of 900 oz. was found in the Tyelgin field.

Minusa Gold Trust. This trust is in the West Siberian Territory and in the Alatau Region at Artemovsk. Gold is found in sulphide lenses and veins in limestone.

Yakutsk Gold Trust. Here are alluvial workings and mines. A number of banket reefs were discovered here.

Ural Gold Trust. The well-known Berezovsk deposits northeast of Sverdlovsk are in this area. Gold quartz veins associated with pyrite, chalcopyrite, and galena cut dikes of granite and syenite-porphyrries.

Platinum

Russia produces 90% of the world's platinum metals. The metal comes chiefly from placer mines in the Ural Mountains. Primary platiniferous rocks are known within the Ural schists over a district of 300 miles, but the placer deposits,

derived from these rocks, lie within a length of less than 100 miles. The platinum is associated with chromite in a matrix of the olivine rock, dunite. The rock has not been mined, but extensive weathering and denudation by rivers traversing the dunite has separated this valuable metal from its matrix, forming platinum bearing gravels. There are two kinds of platiniferous alluvium in the Urals: a) old river beds passing over the parent rock; b) large rivers into which these old river beds lead. Platinum is usually in the base of the alluvium beds.

There are two important centers of platinum production: The *Nizhni-Tagil'sk* district is situated partly on the eastern and partly on the western slopes of the Ural mountain chain. This district has been well known for over a century. The *Issovskiy* district is located at the bases of the Iss and Tura Rivers on the eastern slopes of the Urals.

Chromium

The USSR is first place in the world production of chromium. The annual yield is in excess of 200,000 metric tons of chromite.

The *Saranovskaya* deposits in the Urals are the main reserves, 25% of the Union's chromium comes from this district. The deposits here have reserves totalling 7,000,000 m. tons of chromite averaging about 35% Cr_2O_3 . The ore is made up of disseminated and massive areas of chromite in peridotites and dunites.

Relatively small reserves also occur at the following places: Gologorsky, Khabarninsky, Khalilovo, Kraki, and Mt. Verbluzhnya.

Tin and Tungsten

The reserves of tin and tungsten in the Soviet Union are very small and nearly all of these metals is imported.

Psbanja-Say, a tributary of the Jagrov River, produces cassiterite, scheelite, galena, arsenopyrite, pyrrhotite, and chalcopyrite.

Djidinsky veins contain tungsten with galena and sphalerite.

Mt. Sherlovaya has lodes containing cassiterite, ferberite, molybdenite, and arsenopyrite.

The Khapcheransky mine in the *Kyninsky District* of Eastern Siberia is one of the largest deposits. A granite intrusion into shaly sandstone has given rise to veins carrying cassiterite, some tungsten, and sulphides.

The *Gumbeika* deposits, east of Magnitogorsk, are specially important for their tungsten content. Buranovsky and Balkansky are in this general region. Scheelite is the principal tungsten ore.

Nearly 65% of the Soviet tin production comes from the *Chita* region.

Some tin is found near Verkhoyansk in the *Yana* valley.

These metals are also found east of *Lake Baikal*.

Cobalt

Before World War II the production of cobalt in the USSR was nearly insignificant. A small quantity was obtained from cobalt ores and as a by-product of copper smelting. Now the production program is easily met because of new metallurgical methods as well as new deposits.

Considerable quantities of cobalt are found in the nickel ores of the *Kazakh ASSR* and *Murmansk* regions. The deposits consist of cobalt, manganese-cobalt, and arseno-cobalt ores.

Cobalt is associated with nickel at *Dashkesan* in the Caucasus.

The nickel regions in the Urals discussed above also contain considerable quantities of this metal.

Magnesium

In 1940 the USSR was sixth in order of production of metallic magnesium.

The reserves of magnesium ores are of two different types—the magnesite deposits and the carnallite deposits.

Magnesite occurs and has been quarried extensively at Mt. Boltscheja between Satka and Berdjausch west of Zlatoust in the Southern Urals. The magnesite consists of breunnerite. The Bakal, Katav-Ivanovsk, and Beloretsk deposits are similar. The *Shabny* deposit on the Cheliavinsk River is a talc-magnesite deposit.

Carnallite deposits are at *Solikamsk* in the Urals. These deposits are very extensive and comparable in size to those at Stassfurt, Germany.

Vast deposits of magnesium ore are

being worked on Olkon Island in *Lake Baikal*.

Mercury

Nikitovka, in the Donets Basin, was the principal mercury-producing area up to World War II when the area fell into German hands. Because of this the Russians moved their areas of dependency into Asia. The ore at *Nikitovka* occurs associated with stibnite and pyrite, as a network of small veins and impregnations in much-disturbed carboniferous shales. The ore contains from 0.4 to 1.1% Hg.

In the *Urals* mercury is found as detrital deposits of cinnabar on the Travyanika River 12 miles from Karaoul, and near the *Vikolsk* and *Volshanka* rivers in the *Bogoslov* district. Lumps of pure cinnabar weighing up to a pound are frequently found here. In 1912 many cinnabar veins were reported to have been discovered on the eastern side of the *Urals* in the *Verkh-Isset* district, 20 miles from *Neviansk*.

Small veins of cinnabar occur in the northern *Caucasus* at *Ganai-Vadz* and *Khpekor-Vadz* in southern *Daghestan*.

The *Asiatic* fields mentioned above in connection with the *Nikitovka* area are in *Siberia*, *Kirghiz ASSR*, and *Kazakh ASSR*.

Molybdenum

The *Kazakh ASSR* supplies 60% of Russia's molybdenum. The first molybdenum smelter was opened near *Lake Balkhash* in 1940.

An *Armenia* molybdenum plant was under construction in 1945. The ore is found associated with copper at *Agarak*.

Uzbek SSR is also an important eastern molybdenum and tungsten supplier.

Molybdenum also exists in the Caucasus, *Lake Baikal* region, *Karelia*, and in the Far Eastern Area.

Silver

Russia is one of the largest silver producers of Europe. In 1939 it was estimated that 7,000,000 troy ounces of this metal were produced. Nearly all the silver smelted in the Union is extracted from argentiferous lead ores. Also all the gold produced in Russia contains some silver.

In the *Sadon* mines, west of *Ordzhonikidze* in the Caucasus, silver is mined

along with zinc, lead, and copper.

Silver is also recovered from the lead and zinc ores of *Nerchinsk* in eastern Siberia.

Smiainogorsk in the *Altai* mountains is a good producer of this metal.

Considerable amounts of silver are also produced in the Urals, Kirghis Steppe, Yana valley, and Behring Strait.

Vanadium

The vanadium produced in the Soviet Union is chiefly recovered as a by-product of magnetite smelting operations. These iron ores are mined at *Kusinsk* in the *Urals* and on the *Kola Peninsula*. Recently a large deposit of vanadium was discovered at *Jabagai* in the steppes of *Kazakh ASSR*.

Conclusions

The above listing of resources discloses the exceptional natural wealth of the Soviet Union. Intensive geological research of the last few years has greatly increased the known reserves. No other country has as great a variety of minerals, and only the United States is richer.

Until recently mining was concentrated in only a few districts, near the more densely settled areas or along the major railways. These productive areas reflected historical developments, transportation facilities, and markets rather than reserves. More recently, however, mining has developed in the "back country" also. These new mining regions have caused considerable movements of population as well as making necessary the construction of new railroads and other transportation facilities.

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Two Years of Enjoyment!

Editor R & M:

Enclosed find my check for \$7.00, 2 years subscription to ROCKS AND MINERALS and the other \$1.00 is for a copy of "How to collect Minerals" by Peter Zodac.

The foreaid order will put me in shape for another two years of instruction and huge enjoyment, I am sure.

Horace A. Wolverton
Asbury, Warren Co.
New Jersey

Oct. 15, 1952.

Advertisers are Wonderful Folks!

Editor R & M:

I have been interested in Rocks and Minerals for a number of years, but have delayed subscribing until this past few months. Now I would not be without it. The articles by the many contributors are excellent and I have found the advertisers wonderful folks to do business with. Most of all I am uneasy until I can look through mineral sources and sands. The magazine as a whole is very interesting and I shall have all of my copies bound as a permanent part of my library. They are priceless!

R. O. Sharp
San Pedro
Calif.

Sept. 17, 1952.

Greiger's 1952 Fall Price List

A new price list for the fall of 1952 has been released by Greiger's, 1633 E. Walnut St., Pasadena 4, Calif. This is a most attractive publication of 54 pages and cover, and appears to cover quite thoroughly the wants of the lapidary profession. All lapidary equipment such as arbors, saws, sanders, buffs and other accessories including complete machines are not only listed but nicely illustrated. Rough gem material, jewelry tools and supplies and even fluorescent lamps are also featured. This is a very handsome price list, nicely printed and well illustrated. Send for your copy today.

First Mineral Symposium by Mineralogical Society of Pennsylvania

On Sunday, Sept. 14, 1952, the Mineralogical Society of Pennsylvania had a day full of mineralogical activities. Five big events filled the program. The morning activity was a field trip to the Eureka Stone Quarry at Cornog, Pa., attended by 70 members. At 3 o'clock we gathered at Quarry Garden Farm in Lansdale, Penn., the beautiful home of our fellow members, Gene and Charles Belz, for our first annual mineral collecting symposium. At 5 o'clock dinner was served at the pond. At 6 o'clock our next event was feats of magic by Frank Hall. At 6:30 a talk on Jade was scheduled and this concluded the program.

The exhibits and demonstrations were many, varied and so ingeniously constructed that one felt he couldn't absorb everything despite returning to view each one many times.

Most of the exhibits were housed in the huge, mellow old barn. They included a petrographic microscopy display and demonstration by our host, Charles Belz, and Paul Seel of Bala Cynwyd. In a very interesting manner they showed an accurate method of identifying mineral constituents of rocks by the transmission of polarized light through a thin section of the specimen.

In the same section of the barn a fine micro mount demonstration, by that charming young couple, Bill and Edna Hunt of Havertown and their friend Ben Birchall of Philadelphia, was enhanced by four well lighted microscopes which were in continuous use. Betty Birchall of Philadelphia showed her sand collection under a microscope illustrating a variety of sands and their constituents.

On another table our hostess Gene Belz and Charles Thomas of Royersford exhibited breathtaking cabinet specimens of scintillating beauty, each one worthy of a place in any museum.

In the center section Dr. and Mrs. Arthur H. Hopkins of Merion had a comprehensive collection of fossils from all over the United States.

Juliet Reed of Wynnewood had an interesting and educational geology exhibit showing the various types of rocks, geologic maps and books used in this basic study.

Mrs. W. Hersey Thomas, wife of the president of the Philadelphia Mineralogical Society, exhibited a case of exceptionally beautiful thumbnail specimens.

President Leonard Duersmith's vial collection was different and interesting.

Gerry and Will Shulman's nipper mounts made a hit with apartment dwellers because it presented a unique treatment of small specimens.

In the next section of the barn, Charles Owens of Philadelphia presented an interesting and timely exhibit on the use of his homemade geiger counter showing how the counter worked in the proximity of radio-active minerals. He exhibited many species and autoradiographs of several specimens.

David Dear of Philadelphia exhibited something very different in maps. When the onlooker made electrical contact with a specimen in a tray below, the map above lighted up at the locality where the mineral was found. Everybody enjoyed playing this interesting game. Edna Ennis of Wilkes-Barre did a spectacular job of mounting 35 mm. transparencies of club trips, against a lighted background. We were all impressed with the effect.

Ellen Pietsch of Philadelphia, exhibited some beautiful handmade jewelry, and demonstrated the use of the silversmith's tools by mounting crystals and chunks of minerals brought to her table by members of the group.

In the third section of the barn the lapidary group had many exhibitors and their magnificent display of polished and faceted stones intrigued everyone as did the actual demonstration of cutting pre-forms from the rough material and working them through the various stages to the finishing and polishing of the semi-precious stones. The following members enhanced the appeal of the lapidary sec-

tion by a brilliant display of their cut and polished cabachons: Leonard Morgan, Haddonfield, New Jersey; Walter Lawn of Downingtown, Forrest Lenker, Strafford, Peter N. Roth Jr. of Lansdowne, Howard S. Schanley of Boyertown, Gene Belz of Lansdale, Walter Bauscher of Haddonfield, New Jersey; Russell Bell of Bala Cynwyd, and French and Mattie Morgan our guests from Washington, D. C.

Florence and Harold Evans of Doylestown, and their son David exhibited a case of sparkling jewelry in originally designed settings.

In the darkened hayloft Harold Evans of Doylestown and John Kuppingher of Philadelphia, pooled their specimens to present a spectacular exhibit of fluorescent beauty under short and long wave lights.

Moving out of the barn, underneath the trees, James B. Irvine of Collegeville, and his Junior Division presented a fine exhibit of minerals. Under the direction of

Jimmy Irvine Jr. the group presented a very comprehensive series of chemical mineral identification tests giving detailed talks and demonstrations which amazed and edified the adults.

Florence Evans of Doylestown, and Robert Ennis of Wilkes-Barre, members of our excellent safety committee, exhibited posters, several types of safety equipment and showed various tools which were in an unsafe condition for use.

The giveaway swap table was a tremendous hit. Many members donated first class material from micros to cabinet specimens on a help yourself basis and no one went away empty-handed.

Our charming registrar, Luluh Ranck of Lancaster, was on the job as usual. Her friendly smile made everyone feel at home. She was aided in welcoming members and guests by Betty Hirst, of Haddonfield, N. J., who did a splendid job pinning identification tags on everyone.



Photo by Harold Evans
Official Photographer MSP

The site on the property of Mr. and Mrs. Chas. Belz, Lansdale, Penn., where the first mineral symposium of the Mineralogical Society of Pennsylvania was held on Sun., Sept. 14, 1952.

In the basement of the house, Leonard Morgan of Haddonfield, New Jersey, and Walter Lawn of Downingtown gave a lapidary demonstration in the Belz' workshop.

At 5 o'clock the whole gang assembled at the pond where dinner was served. Merry-eyed Clara Thomas of Royersford presented one of the most popular exhibits composed of 23 homemade cakes and pies, 2 M. S. P. insignia cakes which were raffled off later and a six pound box of cookies all contributed by the members.

Charles Belz, our host, was chef for the occasion. He was ably assisted by his son, David, and brother-in-law, Meinrad Kaelin. They roasted 300 ears of corn picked by Mrs. Marvin Brubaker of Blue Ball, Mrs. Sam Gordon of Philadelphia, and Von H. Byre. Some 15 gallons of coffee were made and cheerfully served by Michael and Ethel Krimm of Lansdale. The Belz's also furnished 100 cartons of milk, 50 bottles of orange juice, sandwiches galore and a luscious baked ham.

The pond was a picturesque setting for this gala feast and everyone had more than enough to eat.

After the sumptuous feast we went back to the barn where we relaxed and watched the amazing feats of magic performed by prestidigitator par excellence, Frank Hall of Gladwyne. Charles Thomas still wonders how his shirt came out from under his jacket.

At 6:30 the lapidary meeting was called to order by chairman Gene Belz who after some preliminary remarks introduced Russell A. Bell of Bala Cynwyd who gave a very interesting talk on Jade illustrated with a beautiful trellis of Jade flowers from his collection. Together with members of the lapidary section he showed many polished pieces of Jade and further illustrated his talk with large pieces of rough Wyoming Jade in many colors acquired by the Shulman's on their recent Western trip.

A vote of thanks is extended by the membership to Helen and Otto Bauhof of Philadelphia for their untiring efforts in giving information, acting as guides and for their aid in planning and attending to the hundreds of details which made the symposium such an outstanding

success.

Charles and Gene Belz and their family were hosts extraordinary cheerfully catering to nearly 200 members and guests. Quarry Garden Farm hospitality will long be remembered by all of us.

Everyone left inspired and filled with enthusiasm agreeing that they had never been to such a wonderful affair.

By Gerry & Will Shulman
Co-Chairmen Publicity Committee
113 Huntingdon Terrace,
Newark 8, N. J.

The Beginning of a Long Friendship!

Mr. Clemens C. Kreuder,
Borough Hall, Verona, N. J.
Dear Friend:

Haven't heard from you for quite a spell and got to wondering how you were coming on your new hobby. We have finally got pretty well settled in our new home and I have got my stuff on the shelves and classified. Surprising amount of stuff accumulated during the hiatus, so to speak, and much of it is non-fluorescent. So, I decided on a house-cleaning.

It's just a year that I ran my exchange ad on the agates (in ROCKS AND MINERALS), and to you goes the dubious honor of being my first reply to that ad. Nearly 200 people answered the ad all told and many of them had to be disappointed as the supply of agates no where met the demand.

So, me thinks, I'll send Kreuder something as a sort of a good-will gesture for being my first correspondent. Accordingly, I am sending you, under separate cover, the following: — (5 nice western minerals).

This isn't much as an anniversary gift, but perhaps they will add something to your collection. If not, swap them or toss them out, as you see fit. Meanwhile, happy hunting and drop a line when the notion strikes you.

Jack R. Carrier
5886 Sunrise Drive,
Sept. 3, 1952. Minneapolis 19, Minn.

Mr. Kreuder's Reply

My dear Jack:

Your nice letter and the nice package of specimens, which came hard upon the letter, were a complete surprise and indicated to me that you are a fine guy. In fact, I liked the whole thing so much that I am sending it to Peter Zodac, the Rocks and Minerals man in Peekskill, N. Y., with a letter from me saying how much I appreciated your letter and the specimens and what a nice feeling it gave me.

I am sure that no advertiser of Pete's ever was a nicer fellow.

Good luck, best wishes, and thanks again.
Many happy anniversaries.

Clem C. Kreuder
Borough Hall,
Verona, N. J.
Sept. 10, 1952.

SUMMER FIELD TRIP OF THE NEWARK MINERALOGICAL SOCIETY TO THE PLATTSBURG, N. Y. AREA

This year the Newark Mineralogical Society chose northern New York State for their summer field trip. The North County Mineralogical Society of Plattsburg, New York, offered to guide us around that area. Mr. George Sandiford of the North County Club was with us every day and he was a wonderful guide. We made our headquarters at Champlain College where the members stayed in a dormitory on the campus.

The group met at 2:00 P. M. Saturday, July 5th, and we immediately began our hunting. Mr. Sandiford took us south to a beach where we found magnetite sand. It was deposited in a small area along the shore near the Port Kent ferry crossing. From there we went to two abandoned marble quarries on Rt. 9. We found very small fossils, none spectacular, but a good example of the type of fossil found there.

Sunday morning the group visited the Chazy Limestone Quarry, north of Plattsburg. In one section we found a few small pieces of fluorescent calcite and in the quarry proper some of the members found some very good specimens of nailhead calcite.

In the afternoon we went south to Cascade Lakes near Keene. The group made a hard climb straight up the mountain. Some took ropes because the augite crystals were in a rock wall just out of reach. One large specimen of augite crystals was found and there were also smaller augite crystals, blue calcite xls, diopside xls, and pieces of labradorite found. Those who didn't make the climb stayed at the lakes below for a sunbath and swim for the children.

In the evening, when we returned to Plattsburg, the North County Society had a picnic dinner ready for us at the home of Mrs. Sherlock out on Cumberland Head. After the hard, hot day, we all really appreciated that dinner.

Monday, Mr. Sandiford took us down to the Cabot Mineral Co. Quarry at Willsboro. One of the men from the

company took us out into the quarry. We were after wollastonite and since that was the mineral being mined we didn't take long loading our cars. We also found cinnamon garnet and green diopside in small crystals. We went to a second mine nearby where we found more wollastonite as well as good flakes of graphite and some diopside.

Tuesday we headed out at 8:00 to take the Cumberland Head ferry to Vermont. The weather was perfect and the ferry trip was a pleasure because we could get a good view of the lake. We went to a mine near Milton for jaspilite, azurite and malachite. The jaspilite was abundant and the only cutting material, besides the labradorite, we found on the whole trip. The azurite and malachite were scarce and of poor quality.

In the afternoon Dr. Manwell of the North Country Society took us out to a limestone outcropping near West Chazy where we found beautiful, big, perfect fossils. Most of the ones found were cephalopods but there were trilobites found too. There were several good specimens with their casts taken.

We had a few sprinkles of rain Tuesday but by Wednesday the weather had developed a rather steady drizzle. Mr. C. Mould, president of the Society, and his father, took us to the Republic Steel Company quarry near Mineville. We had hoped to find zircons but that particular area where they had been found had caved in. There was plenty of massive and granular magnetite available for those who didn't have any in their collection.

On the way home we stopped at a beach near Essex for porphyry.

By Thursday morning a downpour had developed and the rain hardly ceased all day. We all stayed at Champlain College and, Mr. Sandiford showed us a very lovely group of agates which had been collected in Germany. Some pieces were a natural color and some had been dyed. He also had some hand ground spheres from Germany.

In the afternoon we attended a class and lecture on the identification of minerals given by one of the College faculty. Each member of our group had a chance to handle and test the minerals being explained. After the lecture was over, he showed us several pieces from his personal collection.

Friday dawned beautifully bright so we all dried out and crossed the ferry into Vermont again, this time to the Ruberoid Company at Eden Mills. We went down into the pits where the men were working and hunting was good. Since a blast was due a short time after we arrived, our hunting time was cut short. Good specimen of asbestos, serpentine and cinnamon garnet crystals were found.

We wound up our week's trip by going through a talc mill and then to the mine. Our guide claimed the talc from this mine to be the best quality in the country. Some of the rock being mined was 90% talc. We all secured some pieces of very pure green talc.

We had some nice side trips to make the week a success, Ausable Chasm is just south of Plattsburg and of course swimming in Lake Champlain is wonderful.

From our experience on this trip and others we have taken, I want to say how very wonderful it was to have Mr. Sandiford as a guide. We did not lose any of our very limited hunting time exploring unproductive areas or trying to locate hunting grounds.

There were 22 members in the group, including three children. I think we all came home with good samples of the minerals from that locality.

Helen W. Newick

New Head of Famed School's Mining Department

The Colorado School of Mines, Golden, Colo., has named Lute J. Parkinson, distinguished mining engineer with world-wide experience, as head of its mining department.

He succeeds Clifton W. Livingston, who resigned to organize his own mining company.

Parkinson has had extensive experience in mine examination work and production operations in Europe, Africa and North and South America, followed by a long period of administrative positions. His work carried him into the jungles of Africa to search for dia-

monds, into the desert and up to elevations of 17 and 18,000 feet in working sulfur deposits.

In 1950 Parkinson was awarded the School of Mines' highest honor with presentation of a distinguished achievement award.

He has a daughter who is an assistant editor for Reader's Digest and a son who is a first lieutenant in Korea.

Eyles of Yermo, Calif., Takes Off for Australia!

Dear Editor Zodac:

Please accept my renewal for ROCKS AND MINERALS, and enclosed funds. And I wish you to forward the magazine to my Australian address.

Can you imagine me away out in the Never Never country where Darling and Wentworth (early Australian explorers) were killed and eaten by the blacks, or maybe can you picture me crossing the great Black Soil plains, or out in the Darling Downs, maybe mired down rut deep in the black ooze. With the only drinking water obtainable from muddy water holes.

Out where there is nothing but a sea of Mallee Scrub and at night gazing upward at the Southern Cross, nothing for company but the hordes of rabbits, some curious emu's, wallabies, and kangaroos, also naked aborigines around their camp fires dancing at their nightly corroborees, and no ROCKS AND MINERALS to read.

What a price to pay!

Wilfred C. Eyles
The Waratah.
Bayswater Road, Kings Cross.
N.S.W. Australia

Oct. 20, 1952.

Armored Fish-like Vertebrates Found in Canada

About 250 specimens of armored fish-like vertebrate creatures that lived some 350 million years ago, mostly tiny animals less than two inches in length, have been brought to Chicago Natural History Museum by Dr. Robert H. Denison, curator of fossil fishes, who has returned from a fossil collecting expedition in Nova Scotia, New Brunswick and the province of Quebec, Canada.

Many of the bones were discovered in sediments nearly devoid of other fossils. Dr. Denison obtained his first clue to one of the best deposits, after several days of searching, from a small bluish fragment of bone that turned up in a valley near Northumberland Straits in Nova Scotia. Traced uphill, the layer from which it had come was finally located and proved to be full of small pieces of bone. According to Dr. Denison, they are the first well-preserved specimens of vertebrates of this age to be found in North America.

UNIQUE SAND CRYSTALS HARDER TO LOCATE NOW

By WILL SPINDLER

In unorganized Washabaugh County on the Pine Ridge Indian Reservation of South Dakota, is a series of buttes known as Snake Buttes.

Erroneously called "Rattlesnake Buttes" by some, they lie only two or three miles to the west of the Martin-Interior highway that runs north and south across the "wide open spaces" of the vast Indian reservation, and some five miles to the southwest of Headlee Ranch, or about eight miles (14 miles by the grade and trail) almost due south of Potato Creek Indian village.

Three in number, these buttes are located on high, winding ridges that tower high above the rugged, canyon and ravine intersected prairies of this rough area. All three are capped with grotesquely shaped rock and sandstone formations, the main and largest one more prominently so.

The buttes derived their name from the Indians, it reported. In the earlier history of the Pine Ridge Reservation, many snakes were said to inhabit the buttes and surrounding area, and hence the rather formidable name that has stuck with them down through the years.

Snake Buttes are unique in that they are beds for the famous sand crystal formations reportedly found only in two areas in the world—on these buttes and in a certain area in Australia. On the buttes they are found strewn about the surface and deep down in the moist sand beds hemmed in by huge strata of hard rock lining the edges of the summits of the buttes.

These strange sand crystals are all hexagon shaped, more or less pointed at both ends, and range in length from less than an inch to six inches or even longer. They are rough and gritty to the touch, and sparkle in the sunlight.

The sand crystals strewn about over the surface of the buttes are hard and do not break easily, as they have been exposed to the sunshine and the elements. Those dug from the moist sand beds, however, are moist, soft, crumbly, and

break quite easily. They are a very interesting study. Some dug up are not yet fully formed but still in the process of "growing."

Sand crystals grown together in clusters, in the form of open lattice work, are a very beautiful sight to behold. Twenty years and longer ago, many huge, beautiful crystal clusters could be seen on display in many business places and museums, especially in the Black Hills, Badlands, and Indian reservation areas, as well as on Indian graves in cemeteries. Some still may be seen, but they are not so plentiful as they were.

Our first visit to Snake Butte was back in 1930. This was during the period of great activity in collecting sand crystals, and some were hauling them away in trucks, using the large clusters and larger single crystals for their rock gardens or selling them to business places over a wide area. The buttes were finally posted against such commercializing practices, but not until considerable damage has been done beyond repair.

In those days it was not difficult to find a great supply of perfectly formed crystals and some fair clusters on the surface or without too much digging. Now, however, considerable digging is required, and good clusters are very hard to find. Digging in the moist sand is quite easy, but the vast amount of smaller rocks and partially formed crystal clusters bedded in the sand make it quite tedious and aggravating.

The Snake Buttes and crystals are truly one of Mother Nature's miracles. So perfectly formed are many of them that they look like they have been manufactured in molds. The sides, while rough and gritty to the touch, are smoothly and perfectly formed, and the countless tiny sand grains shine brightly when the sun strikes them. They are specimens that make one marvel at nature's great, miraculous handiwork, especially those perfect ones that are perfect hexagons with both ends coming out to uniform points.

For those who have never had an opportunity to behold these famous sand crystals, the chances are good for finding them in the School of Mines Museum in Rapid City, the many rock specimen stands throughout the Black Hills and Badlands, many tourist courts, Cedar Pass Lodge in the Badlands, many other business places, and in private rock gardens at individual homes. They are well worth seeing and examining.

For those tourists who are taking in the Indian country of the big Pine Ridge

reservation this summer, a side trip to the Snake Buttes from the Martin-Interior grade might be enjoyed, even though the crystal "hunting" is not so good any more.

The winding, sidling, deeply rutted trail of some two or three miles from the grade to the buttes is rather hard on your temper and nerves, but with a little patience and perseverance you'll eventually get there safe and sound.

—Rapid City, S. D., Daily Journal
Sunday, June 15, 1952

COLLECTOR'S COLUMN

Conducted by A. CAL LECTOR

This column, designed to be a help to beginners in Mineralogy, began with the September-October, 1948, issue. In the last issue we looked at Almandite, one of the Garnet family. This time let us become acquainted with Graphite, the poor but useful country cousin of the Diamond—Queen of Gems. They are related chemically because they are both Carbon. However, graphite may be impure because of admixed clay and iron oxide.

Graphite

Graphite is indeed a valuable and useful mineral. Some protective paints, polishes, and lubricants contain graphite. As an excellent conductor of electricity, graphite is frequently used in electrodes and brushes for electric motors. Graphite crucibles are used in the steel, brass and bronze industries because they are infusible, excellent conductors of heat, and withstand sudden temperature changes. Every schoolboy or schoolgirl has used graphite many times. The "lead" of a pencil is a mixture of graphite and fine clay. The name graphite was derived from the Greek word meaning to write.

Graphite is most commonly associated with metamorphic rocks such as crystalline limestones, schists, and gneisses. It is found as scales, veins, granular and foliated masses, and as six-sided tabular

crystals. Graphite is flexible but not elastic, that is it will bend but not spring back to its original shape. Graphite has a greasy feel and is quite soft—1 to 2 on Moh's scale of hardness. The color is iron black to dark gray. Graphite can be distinguished from Molybdenite, which it resembles, by the black shiny streak for the streak of Molybdenite has a greenish cast.

Chief producers of graphite are Ceylon, where it occurs in veins in gneisses interbedded with limestones and Madagascar where it is found in schists. Another important deposit resulting from metamorphism of coal beds occurs at Santa Maria, Sonora, Mexico. There are numerous deposits in Central Europe. An interesting occurrence, with native iron in basalt, is found at Ovifak, Greenland.

In the United States, graphite has been produced commercially in the southeastern Adirondack Mountains of New York, especially near Ticonderoga. Notable crystals have been found at Sterling Hill, Sussex County, New Jersey. Other areas where graphite has been found are near Providence, Rhode Island; Chester County, Pennsylvania and various places in New Mexico, North Carolina, Maine and Montana.

Try to add this interesting mineral to your collection today.

CHARLES R. TOOTHAKER

Charles R. Toothaker, actively interested in minerals since boyhood, died in Philadelphia, May 25, 1952 at the age of seventy-nine.

After graduation from Central Manual Training School he secured a position with Foote Mineral Company where he laid the foundation for his life interest in mineral specimens. In 1898 he joined the staff of the Philadelphia Commercial Museum as assistant curator, six years later he became curator in which capacity he served until his decease. He delighted in the encouragement of young mineral collectors and was generous in the distribution of his duplicates. His personal collection contained exquisite crystals of

many mineral species, including some of great rarity. His taste and discrimination was certainly of the best.

Mr. Toothaker was the author of numerous magazine and newspaper articles, thru the years dealing with museum practice which brought him much commendation from various parts of the world and his writings on purely mineralogical subjects were also quite praiseworthy.

He served four years as a consul of Colombia and later as honorary consul for Czechoslovakia, which country, in 1933, rewarded him with its order of the White Lion.

Toothaker was born in Philadelphia, became noted at high school as a runner



Photo by Harold Evans

CHARLES TOOTHAKER—1947

and jumper and was a member of the first basketball team to be organized here.

He was a member of the Sons of the American Revolution, Philadelphia Mineralogical Society, Pan American Association, Museum Council and the Academy of Natural Science, all of Philadelphia. He was also a fellow of the Mineralogical Society of America and an honorary fellow of the Rochester Museum of Art and Sciences.

He visited many of the museums of

THE ARCH THAT MADE A CITY FAMOUS

By MRS. PAUL BENS
Box 664, Aberdeen, S. D.

As one nears Ipswich, Edmunds Co., S. D., traveling from either direction on U. S. Highway No. 12 (Yellowstone Trail), the attention is drawn to the Archway bearing the words, "Welcome" on it and to the sign, "Ipswich" above it. After stopping, we learn from the tablets of bronze, which are embedded in stone and cement on each pier, that it is a monument and memorial to the boys of Edmunds County who made the supreme sacrifice during World War I. And that in Ipswich was started, promoted and sponsored the idea of the excellent highway over which we had been traveling.

For many years Ipswich has been known near and far as the Zinnia City, but to the hundreds of tourists and to the people of Edmunds and neighboring counties it will also be remembered as the city which in such a fitting and lasting way has honored its World War Veterans.

In the construction of the Arch, auto frames were stood upright and in every conceivable way were interwoven with iron and steel. Around the outside, granite in broken Ashlar for the first six feet, "Crazy" masonry for the next eight feet and rubble stone for the next twelve were laid with artistic skill. The core of iron and steel was filled with broken stone and cement. Each pier has a foundation of about eight feet square and it is claimed that they are stronger and more permanent than any monolith ever created. The heavy beams which make

America and Europe and his experiences in Brazil became treasured memories. As a mate, on a freight boat, bound for Greenland to load cryolite, he was enabled to visit that fabulous country and bring back specimens, many of which added new interest to the collections of quite a few members of our society.

Mr. Toothaker is survived by his wife, Martha T. McCandless Toothaker.

Harry W. Trudell
Philadelphia Mineralogical Society

up the span are capable of bearing immense weight and afford an opening of twenty-seven feet in length and fifteen in height.

The whole world was drawn on for Arch material supplied by many Ipswich citizens and travelers. There are stones from nearly all of the states through which the Yellowstone Trail runs. "Indian Clubs," petrified wood, sand calcite crystals, petrified bones, gold quartz, and scoria from a burning coal mine and other stones were gathered in the Dakotas. A number of stones were brought from Europe, Asia and Africa, as relics from Hebron, the Jordan and the alleged place where the ravens fed Elijah, and from the Pyramids of Egypt. Stones from Siberia, the Philippines, Hawaii and the islands of the Pacific, one picked out of a glacier in Alaska; gold quartz from a mine in Idaho; talcose from Vermont and New Hampshire, a stone from the Pyramid of the Sun (which was built centuries before Pharaoh's day) in the valley of Mexico, and a meteorite from Bella's comet or some other wanderer of stellar space, were contributed. The two piers are capped with round boulders, one of granite brought from the North Pole by the Wisconsin glacier, rounded and polished during its millions of years' journey, and the other a cannon ball from the Cannon Ball River.

—AURORA,
September-October, 1943
p.5

CONSTRUCTING A PORTABLE MINERAL HARDNESS KIT

After using this portable hardness kit for several years, it has become apparent that it should be as useful to other mineral collectors as it has been to me. This hardness set can be made by anyone who is slightly handy with tools, and covers the range from 2 plus to 9 on Mohs scale.

The hardness points are two inches long with a point on one end and a hole or loop on the other end. The two plus point is a toothbrush handle which is commonly made from cellulose acetate or in the newer ones polystyrene. The three point is pure copper from an electric knife switch or other source. The four point is common low carbon steel such as used in sheet metal or other structural objects. The five point is the end of a hacksaw blade that has been annealed by heating to a bright red heat and cooling slowly. The six plus point is the end of a hacksaw blade that has been heated to a bright red heat and then water quenched. All points higher on Mohs scale are made by solder dropping the proper mineral in the end of a small copper tube. Copper tubes about $1\frac{1}{2}$ inches long are cut from some scrap copper tubing such as used on autos. A loop of stiff copper wire is made and inserted into the end of the cleaned copper tubing. The tubing is then flattened almost to the other end. The tubing is then heated and flux applied prior to filling the open end with solder. The standard hardness mineral is gripped with a pair of tweezers and forced down into the molten solder until the solder solidifies. The seven point has a small quartz crystal, the eight point has a topaz crystal, and I prefer a sapphire tipped phonograph needle for the nine point. Steel phonograph needles can be set in the same way for six plus points. Marking the points with a set of number dies completes the work.

The finished points have these advantages; (1) They are easily carried in the field, (2) They are easy to use on small cleavages and fractures of minerals, (3) They are cheap and also easy to make, (4) They cover a wider range and are



Mineral hardness kit (portable) laid out with magnifier, magnet and shoelace to string hardness points on. Plastic tube carries them all. Order from left to right 9, 8, 7, 6+, 5, 4, 3, 2+.

more precise than such items as a knife blade, copper coin, and fingernails. The disadvantage is that the points dull easily, but the metal ones are easily sharpened with a file or stone and the mineral points are easily replaced.

Otto G. Bartels
376 Amostown Road
West Springfield, Mass.

A Plea for a New Name!

Editor R & M:

Why can't we as collectors and students of sand have a suitable name to identify our specific ambitions?

Collectors of postage stamps are known as Philatelists, collectors of coins are known as Numismatics, the polishing of minerals as Lapidary and there are many others which might be mentioned.

A sand collector could be anything from a human being to your sandwich at a picnic or your shoes at the beach.

Is there not someone in this great land of ours who can create a suitable name for a human who collects and studies the sands of the earth, to distinguish him from the inert?

Sept. 21, 1952

Homer A. Davis
524 Putnam Ave.,
Cambridge 39, Mass.

Read from Cover to Cover!

Editor R & M:

You have one of the most interesting publications I have seen in a long time. It is so human and written in terms that makes me read it from cover to cover.

N. J. Busby
Melrose Highlands
Mass.

Oct. 9, 1952.

World News on Mineral Occurrences

Items on new finds are desired. Please send them in.

Abbreviations: xl—crystal xled—crystallized xline—Crystalline

ALABAMA—A letter, dated Sept. 11, 1952, comes from W. L. Pratt, Jr., Box 126, Centerville, Ala. It reads as follows: "I am sending under separate cover a few small pieces for identification if you are not too busy and also if you do not mind doing so.

"The pieces came from a well that was being dug in this vicinity. These pieces came from the bottom of layer of bluish colored clay that was about four feet thick. Due to the weight of the pieces the person digging the well wished to know what this clay contained.

"I will appreciate it if you let me know what it is."

The pieces are small gray marcasite nodules. They are interesting specimens. Centreville is in Bibb County, in the central part of Alabama.

Near Odenville, St. Clair Co., Ala. is a shallow copper prospect. Malachite has been found on pieces of rock at this point—Item contributed by William M. Johnson, R. F. D. 6, Knoxville, Tenn.

ARIZONA—Richard Bideaux, 2521 E. 8th St., Tucson, Ariz., sent us a clipping from the *Phoenix Ariz. Gazette*, dated Sept. 11, 1952. The clipping carries a large picture of the famous lead-zinc mine at Tiger, Ariz. This caption reads:

"This is Tiger—mining community of about 1,200 in southeastern Pinal County which probably will become a ghost town when the Saint Anthony Mining and Development Company shuts down its lead-zinc mine (on hill at left). Company officials say development of the gigantic low grade copper reserve nearby, now being readied by the San Manuel Copper Corporation, will ease the economic blow to the area. The Tiger mine, one of the biggest lead producers in the U. S. during World War II, tapped the highly mineralized zone above the San

Pedro River. It is scheduled to suspend operations Nov. 1."

This is disturbing news as the company's Mammoth mine is world famous for its beautiful minerals. The mines are being shut down due to the present low prices of lead and zinc.

ARKANSAS—In a letter dated June 27, 1952, received from Robert E. Riecker, 9709 S. Prospect Ave., Chicago 43, Ill., is the following item:

"In a recent list of the government geologic maps and bulletins that I just received, I found a publication which might interest readers of ROCKS AND MINERALS. Bulletin number is 973-E. The title is "Quartz crystal deposits of western Arkansas," by A. E. J. Engel. The price is \$1.50.

"I have just received one copy from the Chief of Distribution, U. S. Geological Survey, Washington 25, D. C. It deals mostly with the quartz crystal deposits of western Arkansas throughout an area of about 750 sq. miles. This is an interesting document; I plan to take a trip to this region very soon".

A group of very fine rock xls has been donated to R & M by Mr. Richard Buhlis of the House of Crystals, 2206 Central Ave., Hot Springs Nat'l Park, Ark. The xls, which came from Blakely Mt., Garland Co., Ark., were presented to the Editor at the July convention held in Canon City, Colo. (see R & M, July-Aug. 1952, p. 372).

CALIFORNIA—Some interesting minerals have been donated to R & M by three California subscribers as follows:

From Julian A. Smith, Rt. 2, Box 756 B. Modesto, Calif.—a nice specimen of light green (stained brown) radiated pyrophyllite from Tres Cerritos, Mariposa Co., Calif.

"The specimen comes from Tres Ceritos, sometimes given as near Indian Gulch," letter from Mr. Smith, dated July 7, 1952.

From B. E. Sledge, Sr., of the Sterling Shop, 8679 Castro Valley Blvd., Castro Valley, Calif.—black drusy magnetite xls on dark grayish-green chlorite schist; also creamy white bladed xls of diopside (pyroxene) associated with yellowish xls of andradite (garnet)—some of the diopside are in bristling aggregates of tiny xls—some radiate from a common center—some are a mesh of tiny slender xls. Both the magnetite and diopside were found in the vicinity of the noted benitoite mine in San Benito Co., Calif.

From Wilfred E. Eyles, Yermo, Calif.—grayish, compact, lustrous (satin spar) mass of ulexite; and the best kernite we ever saw—translucent, colorless masses (keep in a dry place—note on label). Both the ulexite and the kernite come from the Pacific Coast Co. borax mine at Boron, Kern Co., Calif.

COLORADO — Nice, white, compact fibrous masses of aragonite, occur at McElmo Trading Post, McElmo Canyon, Montezuma Co., Colo.

CONNECTICUT — In a letter dated Aug. 19, 1952, from George E. Wilkes, RFD, East Hampton, Conn., is this most interesting passage:

"The Strickland mine has been pumped out and I was told the Government was working it for mica. I also heard it was a Virginia company who is doing the work, but I'll find out and report later."

The Strickland feldspar quarry (or mine) on Collins Hill, near Portland, is one of Connecticut's most famous localities. (see R & M, May 1937—"Minerals of the Strickland Quarry, Conn." pp. 131-144). Long idle, the announcement that the Strickland quarry is being reopened should make all collectors in the East sit up and take notice.

DELAWARE — Limestone has been quarried in New Castle Co., Del., at Jeane's, on Pike Creek. If any collector

has visited the locality will he send in a note on what was found? Incidentally, we are in need of items on Delaware and would appreciate notes from readers.

FLORIDA—Some very interesting fossil bones and teeth have been found near Mayport, Duval Co., Fla., by Capt. F. J. Smith, P. O. Box 905, Mayport, Fla. A number of these fossils were donated to R & M but to our sincere regret they did not get the attention they deserved. Here is part of his letter, dated March 12, 1952:

"I am only a field collector to sell what I can find for I am too old to start a collection. I am also an old Sea Captain with some mining experience. How old you can figure for yourself when I say I worked at the "Gold Coin" Silversmith mine, Victor, Colo., Cripple Creek Dist., about 1898; also at that time at the Washington Camp copper-silver-lead mine 20 miles west of Nogales, Ariz.—in the mill running the jigs for silver and lead and the only American except bosses (all others Mexicans).

"I prospected in New Mexico and Washington and in 1900 was steamboating on the Yukon River in Alaska.

"I am sending you some fossil bones and teeth. These have been pumped up by dredges from St. John's River (near Mayport, Fla.,) when deepening it last year; the spoil banks are in some cases 3 miles from the spot where dredged and over in the marshes. Some of the spoil banks are buried in sand due to strong winds lately while others are just narrow strips and one has to know what and where to look for and to recognize the fossils when seen as only a point sticks up. No car can get to them; I hike some 3 miles across the river in the ferry and pack the fossils back on my back. To some spots I go by rowboat, going with the tide and coming back when the tide turns. I have several hundred pounds of bones, teeth, parts of horns and tusks, etc.—some big chunks over 6" dia. and 10-11" long, ball and sockets of joints, etc. It's work, collecting these fossils, as I have to walk over rough material, put-

ting up a pile of rocks or some sticks to mark where I have been, and sometimes working with my nose to the ground just like a real hound. No one else around and the spots so out of the way and dangerous, if you don't know your ground, for the spoil banks are in the marshes and if you get in too thin a spot you will break through and some places have no bottom. I know of two cases where they were digging drainage ditches with draglines which were left overnight on mats; in the morning there was not a sign of the draglines—they had sunk during the night and completely disappeared."

Another letter, dated April 28, 1952, will appear in the next issue of R & M

GEORGIA—"From time to time, small clear doubly-terminated quartz crystals are brought into the State Geological Survey. Generally these little crystals contain numerous inclusions; in the other cases, they are perfectly clear and resemble ones from the famous Herkimer County, New York, locality. In almost all cases, they come from the Paleozoic area of northwest Georgia.

"Mr. William Telleson brought in today (July 29) a handful of crystals of this type, which he obtained from a creek bed in the vicinity of Rome, Floyd County (Georgia). He did not supply us with the exact locality.—A. S. F."—Georgia Mineral Society *News Letter*, July-August, 1952, p. 92 (Dr. A. S. Furcron, Editor, 425 State Capitol, Atlanta 3, Ga.).

IDAHO—Excellent xls of pyrite have been found in the Croesus gold mine in Hailey, Blaine Co., Idaho.

ILLINOIS—A letter dated June 27, 1952, from Robert E. Riecker, 9709 S. Prospect Ave., Chicago 43, Ill., has this interesting item:

"I have just received news of a large solution pit being opened in one of the limestone quarries near Chicago. Just which one or where I cannot find out. But as I understand the pit is 12' by 6' and is lined with calcite and quartz xls. It was

found, I understand, by a rockhound and the quarry is holding off operations in that part of the pit for about three months for some reason. I believe the particular pit is located in Harvey (Cook Co.), Illinois, and is owned by the Material Service Corporation. That corporation has three quarries around Chicago and they have always yielded very fine specimens of calcite, marcasite and sometimes quartz. I will be unable to find out about this locality myself for I will be very busy this next month. However I thought that I would write and tell you about it before the deposit is worked out. At this time very few know about the opening. I found out about it from a Material Service worker. Just a couple of things to be of interest, maybe, to your readers."

INDIANA—A new find, a mammoth tooth, has been found near New Albany, Floyd Co., Ind. John E. Smith, 1840 Culbertson Ave., New Albany, Ind., tells us about it in his letter dated Sept. 5, 1952:

"On Aug. 3, 1952, Thomas C. Southard and I went to the banks of the Ohio River above New Albany, Ind. Here Tommy found a mammoth's tooth. It was broken into 3 pieces but I reconstructed it. It is in good condition now and I own it and plan to exhibit it. It is 7"x8"x3½" in size and very well preserved. This is interesting because there have been only a few found here. The only one I know of was found near Clarksville, Indiana, and I don't know its whereabouts."

IOWA—Some few months ago we received an interesting specimen from Mrs. Frank Krogmeier, Sr., Rt. 2, Ft. Madison, Iowa. The specimen is a pinkish fossilized coral whose locality is Sugar Creek, Lee Co., Iowa.

In her letter is this passage:

"R & M is a mine of information for rock hounds. Keep up the good work. I'll be a subscriber until the last rock is picked up and filed."

KANSAS—Not long ago the conductor of this department had the pleasure of examining the mineral collection of

George M. Emrich, 210 Massachusetts, Winfield, Kans. Some specimens seen that were most interesting were dark gray rough masses of petrified wood, one was 12 or 15 inches long and probably 18 inches thick. The specimens were found in a pasture at Elmo, Dickinson Co., Kansas.

KENTUCKY — The following item, dated June 15, 1952, comes from Bob Barnes, 3930 Brookfield Ave., Louisville 7, Kentucky:

"Blue Grass Stone Quarry, on U. S. 25 midway between Lexington and Georgetown, Kentucky (Fayette Co.). Nice fluorite crystals and dolomite crystals have been found here. Also some barite, sphalerite and calcite crystals. The fluorite is usually tan to yellow and the dolomite is a delicate pink."

LOUISIANA — A nice colorless mass of halite has been received from L. F. Rodrigue, Raceland, La. The specimen comes from the salt mines on Jefferson Island, on the boundary line of Vermilion and Iberia Parishes, about 9 miles west of New Iberia, La.

MAINE — Sumner H. Sandberg, Jr., 20 Chesterford Rd., Winchester, Mass., made a trip to the old mines at Katahdin, Piscataquis Co., Me. Read about it in his letter dated Oct. 3, 1952:

"My Mother and I just had a very interesting trip to the Katahdin Iron Works in Maine. To reach this place is a bit difficult. You go to Milo and take Route 221 to Brownville, then ask how to reach the airport (not being used anymore). This is all blacktop road and about 10 miles from Milo. A dirt road leads left, better ask directions or miss it you will, and you go about 9 miles on this road to the iron works. This road is closed in wet seasons and all winter. It is only wide enough for one car.

"At the iron works you will find the old blast furnace is still very well kept. I found several very fine fluorescent slags at this furnace. The dam and race are interesting. The water wheel that

worked the bellows and its building are just a heap of rotten wood now.

"We went about 3 miles up on the mountain which is all iron and sulphur ore. On a hot day you can smell the sulphur very well. We have some samples of this ore and also some fool's gold.

"I believe this old works will soon be closed to the public as a chemical firm has taken it over and are now tracing out the best ore; they are more interested in the sulphur, I was told."

This old iron mine has been receiving a lot of attention lately and so for the interest of our readers we have dug up some information on it. The following is taken from "Notes on the samples of iron ore collected in Northern New England," by Edward R. Benton (Tenth Census of the United States, Washington, D. C., 1886, vol. xv. p. 79).

"Katahdin, Piscataquis County. Limonite. One mile west of Kathdin iron-works, the works being about 50 miles north-northwest of Bangor and 19 miles north-northwest of Milo station, on the Bangor and Piscataquis railroad.

"Mining was carried on here many years ago, but until 1873 only the ore occurring immediately on the surface (i.e., not over 2 feet deep) was used.

"The present workings consist of three excavations on the northside of a hill 1 mile west of the Katahdin iron-works.

"Piled in heaps it (the ore) oxidizes rapidly, giving off sulphurous fumes, and depositing in the crevices fine crystals of sulphur and of sulphate of iron.

"The ore proper is a porous to cavernous limonite, showing mammillary, stalactite and lamellar forms. It is said to contain about 4 per cent of sulphur.

"The "surface" ore is limonite, and has in some places a basis of leaves and twigs, while in others it fills the interstices in the glacial gravel."

(See also R & M, May-June, 1952, p. 252).

MARYLAND — The following item, dated Aug. 27, 1952, comes from Jack Kepper, 5100 Belle Ave., Baltimore 7, Md. It contains some additional notes on

minerals found in a water tunnel dug under the city of Baltimore, Md.

"It has been two years this month since my first article on the Powder Mill water tunnel minerals was published in ROCKS AND MINERALS. Since that time the microscope has turned up some interesting material. The Powder Mill dump is gradually being carted away and cast into Baltimore harbor as fill. In fact this locality will probably be a memory before many more months have elapsed.

"The first mineral under the microscope is phillipsite (identified by Mr. Desautels of the Baltimore Mineral Society). I am told that this is the only known occurrence of perfect penetration-twinned crystals of phillipsite (fig. 971 Dana's Textbook) in the United States. Those who are familiar with the French phillipsite (Puy-de-Dome) will know what I mean by fine crystallizations. Unfortunately only two specimens have been found. Some of the crystals are transparent while others have a frosted appearance. A bluish tinge was noted on some of the crystals. The matrix is a decomposed feldspar, probably orthoclase, with biotite. Associate minerals are pyrite crystals, some found on the phillipsite itself, and heulandite. Two nice mounts of flattened heulandite crystals in tufts came from this same material. These specimens are excellent examples of a feldspar being acted by solutions to form zeolites.

"Another micro of interest is natrolite. The crystals are transparent and usually occur poking out from micro analcite crystals. The long slender prisms have perfect bipyramidal terminations (fig. 982 Dana's Textbook). The matrix in this case is not feldspar, but gabbro.

"The specimen I have before me now is one of the more delicate micros in my collection. The mineral is prehnite. The transparent, thin, tabular plates (rectangular in shape) are perched precariously on the walls of the cavity which contains them.

"These four minerals—phillipsite, heulandite, prehnite, and natrolite—are a fitting epitaph to Powder Mill."

Another note on Maryland Minerals, dated July 29, 1952, comes from Miss Helen L. MacLeod, 4826 Butterworth Pl. N. W., Washington 16, D. C.

"I don't know whether this should be filed under Pennsylvania or Maryland but the Line Pits (Rock Springs) Williamsite locality has got LARGE (up to inches) pieces of pale lilac kammererite in crystalline, micaceous and vein types, all thrown aside by diggers because it was not green williamsite. Many pieces were under the tree where the poison ivy is. Look where people have dug and see what whitish pieces look lavender in your pail of water. Some of this may polish with the slow speed wet-sanding technique."

The kammererite is found at the long abandoned chrome pits known as the State Line Pits (because on Maryland-Pennsylvania line) in Cecil Co., Md.

MASSACHUSETTS—We received an interesting white barite specimen containing small lustrous tarnished (bluish) masses of bornite and with greenish scales of malachite. It comes from John Kitson, 30 Briggs St., Easthampton, Mass. A note from Mr. Kitson, dated Sept. 12, 1952, reads as follows:

"Under separate cover I have mailed you a barite specimen which we discovered at the Cheapside quarry on a recent visit—not much in itself but remarkable for its likeness to Cheshire, Conn., specimens and due to the fact that it occurred in a trap (basalt) vein while the Cheshire material occurs in sandstone.

"The Cheapside quarry at Greenfield (Franklin Co.), Mass., is a basalt (trap rock) quarry. It is a smaller operation than the Lane trap rock quarry near Westfield, Mass., but has been in continuous operation for at least 40 years from my personal observation. How long previous to that I don't know."

MICHIGAN—"Nice crystals of calcite and small but bright crystals of quartz can be found in the rock blasted out when the water plant was built at Whitestone Point, 8 miles northeast of Au Gres

(Arenac Co.,) Michigan, on U. S. 23.

"The crystals are found in a cherty limestone that outcrops in the lake bottom near the shore. The best of the calcite crystals are usually found in the limestone, while the quartz crystals are found in vugs in the chert. The chert is grey with black markings. Some of it is quite attractive.

"The limestone is the Au Gres limestone of Upper Mississippian age. It is usually included in the Bayport formation."—item on a post card dated Oct. 7, 1952, from E. S. Cornelius, RI, Breckenridge, Mich.

MINNESOTA—Mrs. Harold Whiting, Box 337, Rochester, Minn., has sent in a number of minerals collected at the Judson iron mine, near Buhl, St. Louis Co., Minn. They are:

Hematite—dark reddish earthy masses in cavities of rocks.

Limonite—yellowish earthy masses with above hematite.

Gypsum (selenite)—drusy pale brownish incrustations on hematite; also incrustating inside of dark gray fossil shell.

Magnetite—tiny black splendid octahedrons in hematite.

Marcasite—tiny groups of platy xls with hematite.

MISSISSIPPI — Limonite deposits are known to occur at Iuka Lake, Tishomingo Co., Miss.

MISSOURI—In the Sept.-Oct., 1952, THE AMERICAN MINERALOGIST (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.), appears an interesting article "New occurrence of minerals at Iron Mountain, Missouri," by Victor T. Allen and Joseph J. Fahey, (pp. 736-743).

Salite, actinolite, dolomite and fluorite at Iron Mountain are reported for the first time.

Salite, an intermediate pyroxene of the diopside-hedenbergite series, occurs as grayish-green columns up to 10 inches long.

Actinolite (amphibole) occurs in gray masses.

Dolomite occurs in pink veins up to $\frac{1}{2}$ inch wide that cut andesite porphyry. It has the color of rhodochrosite but has the optical properties of dolomite.

Fluorite as purple granular masses occur in quartz.

The locality at Iron Mountain, St. Francois Co., Mo., is an iron mine (hematite) which has been in almost continuous operation from 1845 to the present.

MONTANA—We recently saw on display in the Colorado State Museum, Denver, Colo., a pure plate of molybdenite (about 2 inches in diameter) whose locality was Kim Orlu Mine, Butte, Silver Bow Co., Mont.

NEBRASKA—Another specimen seen at the Colorado State Museum, Denver, Colo., was a nice polished brown agatized wood whose locality was North Platte River at North Platte, Lincoln Co., Nebr.

NEVADA—A nice black platy mass of hubnerite in massive milky quartz and coming from the Mammoth district, Nye Co., Nevada, has been donated by Roy Shoemaker, 1827 W. Drescher, San Diego 11, Calif.

NEW HAMPSHIRE — A new occurrence of wardite, in well formed, white to colorless crystals, has been found in pegmatite at Beryl Mountain near West Andover, Merrimack Co., N. H. The occurrence was written up by Cornelius S. Hurlbut, Jr., "Wardite from Beryl Mountain, New Hampshire," and appears in THE AMERICAN MINERALOGIST, Sept.-Oct., 1952, pp. 849-852 (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.).

The following letter, dated Sept. 16, 1952, comes from Jonathan Kapstein, 248 Morris Ave., Providence 6, R. I. It describes a trip he made to the Currier mine near Wentworth, Grafton Co., N. H.

"Part of my vacation this summer was spent going on mineral trips. For Beryl and Tourmaline, I found the Currier Mine one of the richest mines I have ever been to.

"To get there you go from Concord, N. H., 50 miles north along Route 3-3a. Follow 3a up to where it merges with Route 25. Follow Route 25 North-West 15 miles until you get to Wentworth, N. H., and 1/2 to 1 mile North of Wentworth, Route 25 crosses railroad tracks, 500 ft. beyond the tracks is a dirt road on the right. Follow this for 3/4 of a mile past two white houses which are on the left. Past the second house is a meadow road leading across the meadows. Park your car and hike 1/4 of a mile to the mine.

"My father and I found a 20 lb. rock with 4 Beryls on it. Each Beryl was 4 inches long and an inch wide—they were almost gem quality. We also found a 5 inch Tourmaline crystal and many pencil-lead Beryls.

"The Beryls are generally found in iron-stained feldspar on the dumps. The Tourmalines are also found in feldspar in the mine pit itself.

"I recommend asking the owner of the mine who lives in the second white house, (although the mine is not running) whether you can go up to it."

NEW JERSEY—J. Kent Perry, RD # 1, White House Station, N. J., sends in some notes on a quartz xl locality at Sergeantsville and a torbernite locality at Stockton, both in Hunterdon Co., N. J. His letter, dated Aug. 25, 1952, reads as follows:

"Now, I am not responsible for the discovery of the Sergeantsville quartz xls. Messrs. Metersky and Balik of our Society first found them. I have now clocked the distance so here are directions for reaching the location:

"There are three traffic circles at Flemington, N. J. When you reach the westernmost circle, turn south on a macadam road bearing the sign "Sergeantsville 6 mi.; Stockton 10 mi." and go all the way to Sergeantsville (6mi.). Then continue straight thru the little town and go on out the road for 1.2 mi. This will bring you to the top of a small rise, and you will see a group of mailboxes on the left side of the road with a dirt lane leading in. Go in and ASK permission to collect in the farmer's sand pit. I always

ask permission to collect wherever I go, and most people appreciate it very much and are usually cooperative. The sand is a sandstone that has completely weathered, and the quartz xls occur throughout. However, the best spot is in a thick vein or quartz which has not weathered . . . this will be found underneath some old, dead apple trees on the far side of the pit. You have to crawl through the branches and will then find where we have been digging into the vein. The xls. occur in cavities in the vein filled with mud, and need to be washed before they look like anything. Most are rock xl, but the larger ones tend to become cloudy. Majority up to 1/2" and I've found up to 1 1/2". One lucky fellow found a 3".

"While you are down there, you might as well continue the 3mi. into Stockton and turn right and go out the road to Raven Rock. Turn left at a fork in the road, and this takes you out along the Delaware River. However, while the road is still at right angles with the river before you come to it, you will see diggings in the road bank on the left. Now with some hard work and good luck you may find some small, green, micaceous xls on rock. This is torbernite, a copper uranyl phosphate, and not too common a uranium mineral. It is actually a copper uranite, 56.6% uranium trioxide. Some which is not micaceous is metatorbernite (?). Also found one specimen of autunite (with Mineralight) and two specimens of uranophane, one being of nice radiated, acicular xls under 10X. The specimen of torbernite I am sending is small . . . there is not too much . . . and soon as I can get a better one for you I will send it.

"Anyone who is interested could stop off in Flemington at the old copper mine while they are there. See R&M June, 1946, pp. 346-347. Also R&M May-June, 1952, pp. 254-255."

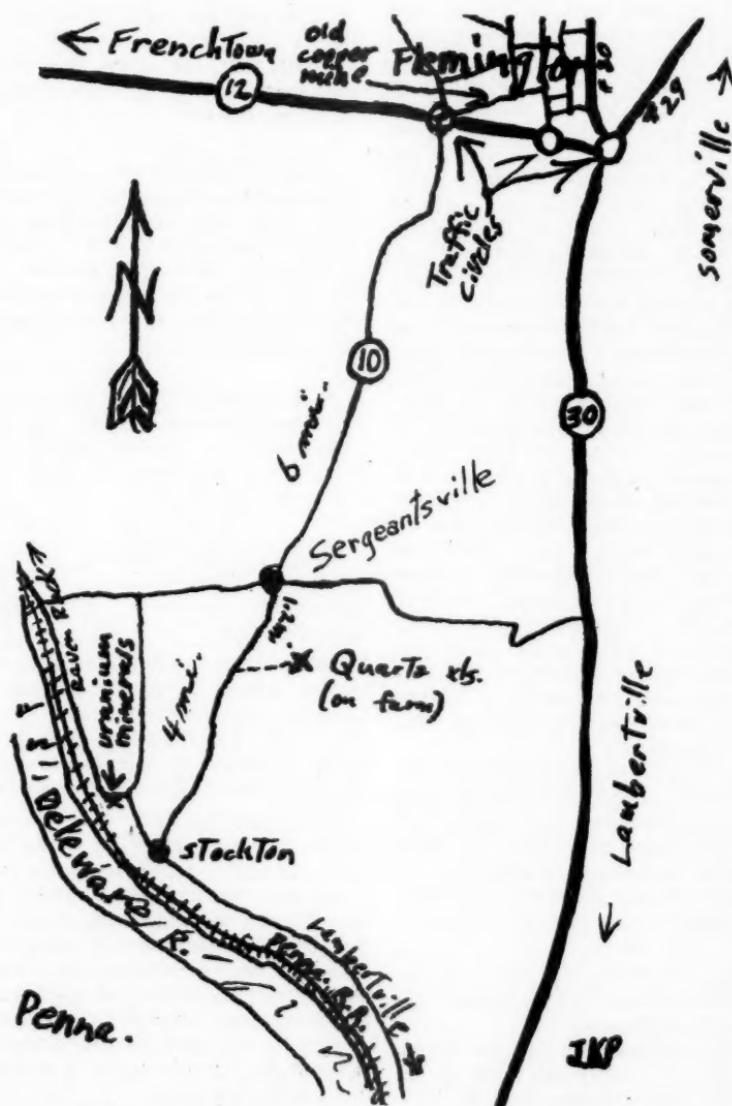
NEW MEXICO—A card dated July 2, 1952, from Don Alfredo, 322 Linda Vista, Las Cruces, New Mexico, bears this message:

"Limonite pseudomorph after pyrite

are found in pinhead to $\frac{3}{8}$ " size on the dumps of the Roos shaft of the Memphis mine, Organ (Dona Ana Co.), New Mexico.

"Small chunks of fair quality carnelian

and sardonyx are found from $\frac{1}{2}$ mile westerly from the Aleman ranch between Rincon (Dona Ana Co.) and Engle (Sierra Co.), New Mexico."



Map showing quartz crystal locality near Sergeantsville and tobernite locality near Stockton—in New Jersey

NEW YORK—Claude H. Smith, Box 291, Geneva, N. Y., has been making some nice finds in the quartz crystal area of Herkimer County, New York. Just read his letter, dated Sept. 16, 1952, and learn for yourself:

"Yes, I have been lucky and have found a few outstanding specimens. I believe it is constant heavy work that gets them. For instance on the last trip I removed a section of rock about 6' by 5' and down about 5' where I wanted to get. It was back breaking work getting the rock out with crowbars and then breaking the big pieces up so they could be removed. Took 3 hours to get down to where I could take off the good rock. That took another hour. Then 4 hours of grunts and groans and not one crystal. In that same afternoon less than a quarter of the work rewarded me with a museum specimen. I broke one specimen before I got wise to what was there. Worked carefully and took out a calcite crystal 8x7x3 inches with a 4 inch Herkimer "Diamond" embedded in one of the faces. The big crystal had slipped out of its pocket but was easily glued back in. Hope to bring it to the Newark, N. J., Show next month with Don's collection. Another museum specimen we found this year will also be in the show. It is a matrix with approx. a 3 inch crystal on it. Last year found another museum piece. I have not the measurements here but it is about a 4 or 5" smoky multiple group of Herkimer "Diamonds."

"The work is getting harder and the crystals fewer. But then I like the outdoors and the work. It keeps me in trim and I don't mind some bad luck. That one calcite specimen is worth three or four trips with only callouses to show for your trouble."

A letter, dated Aug. 9, 1952, was received from Wilbur J. Elwell, 2 Duck St., Danbury, Conn. It reads:

"Had a collector visit me last Friday who had been over to the Tilly Foster iron mine (Tilly Foster, Putnam Co., N. Y.) and found nothing worth while. He wanted me to go back with him and show him where to look, etc. It was

raining and though you can't find much in the rain, I went with him and in 1½ hours found a 3 lb. chunk of fibrous pirolite and the largest piece of brucite I ever saw from Tilly Foster—11 lbs. in weight!

"You can't find much by walking over the top, as many people walk over the top each year, but if you dig, and dig hard, you, too, may get some nice specimens like I did."

NORTH CAROLINA — A handsome specimen of black tourmaline xls in white albite with some massive smoky quartz has been donated to R & M by William M. Johnson, RFD 6, Knoxville, Tenn. The locality for the specimen is Crabtree Mountain emerald mine, Little Switzerland, McDowell Co., N. C.

NORTH DAKOTA — An interesting dark brown limonite nodule, from a locality south of Moffit, Burleigh Co., N. D., has been received from S. T. Parke, Sterling, N. D.

OHIO — The following interesting letter, dated Sept. 4, 1952, comes from Sam Speck, Jr., Bentler Rd., R.D. 2, Louisville, Ohio.

"Although few people realize it, Ohio too has within its boundaries many interesting geological formations. One of such is the "Nelson Ledge State Park," which is located 15 miles north-west of Warren, (Trumbull Co.), off Route 422.

"Here, one may walk for more than a mile among the grottos, over the boulders, and under the over-hanging rocks. It was here that the Indians camped and hunted just a short time ago. This is evidenced by the number of relics since found. At one time this was the scene of Ohio's first and only gold-rush, for in 1870 hunters discovered what they thought to be gold in and along the banks of the Cascade Creek. It was later found to be only pyrite.

"Today the park contains 167 acres of rare and beautiful botanical specimens and unusual rock formations.

"The ledge consist wholly of Sharon conglomerate which is a coarse crystalline sandstone in which pebbles of white and rose quartz and jasper are imbedded. It is believed that the ledges were formed by wind, water, and glacial ice and that the pebbles of which they consist came originally from the Canadian Shield of the North West.

"An outstanding characteristic of the conglomerate is the number of joints in the rock which divide it into great blocks instead of leaving it one solid mass.

"Here too inside of "Gold Hunters Cave," an 80 ft. semi-circular cavern, one may find yellow ochre on the walls and floor where it is deposited by a spring which flows from the rear wall.

"Whether you have geological interests or not, Nelson Ledges will present you nature in its rugged beauty."

OKLAHOMA—Smithsonite has been mined in the Arbuckle Mountains near Davis, Murray Co., Okla.

OREGON—From Raymond Conover, Stone Ridge, N. Y., we have received a $\frac{1}{2}$ section and 4 thin slabs of chocolate-brown thundereggs whose locality is Pony Butte, Jefferson Co., Oregon. All these specimens have been beautifully polished by Mr. Conover and are good examples of his lapidary skill.

PENNSYLVANIA—From Claude E. Golden, R.D. 4, Easton, Pa., we have received a very nice dark brown jasp-opal whose locality is Browns Terrace, Northampton Co., Penn. In his letter, dated June 29, 1952, he writes:

"The brown jasp-opal comes from a little town called Browns Terrace. This is located 5 miles below Easton on the 611 highway. The mineral is obtainable in pieces up to 10 lbs. or more. The red jasper (also found here) is quite scarce except in small pieces.

"With this letter I am sending you a larger piece of brown jasp-opal (4x4 that should take a good polish) and also a few specimens of white fluorite which fluoresces a bright blue. I also have a few

pieces that are pale green under the light.

"I have about a thousand samples of fluorite like the ones sent and if you know of any one who would like some, I'll be very glad to send them a sample or two. I do not know the locality of the fluorite; I got them from a plant I used to work at but which is now gone from Easton. The fluorite was used in the making of acid.

"At the end of July I will be taking a trip to Peru where I hope to find some nice minerals. I will be located about 150 miles from Lima, in the mountains. This trip will be in connection with the installing of a sulphur plant.

"We are on our first leg of forming a mineral club here in Easton. We do have some men and women who have good collections.

"P.S.—Anyone wishing the fluorite may have it by dropping a card with name and address."

RHODE ISLAND—In the collection owned by Donald S. Wrathall, 47 Common St., Providence 8, R. I., is a very fine loose pale smoky quartz xl—about $3\frac{1}{2} \times 2 \times 1\frac{1}{2}$ —from the Dexter limestone quarry, Limerock, Providence Co., R. I.

This is believed to be the largest xl ever found in the old quarry, which has been abandoned for years.

SOUTH CAROLINA—At Oakland Grove, Abbeville Co., S. C., in the old Dorn mine, nice specimens were once found of native gold, galena, pyromorphite, garnet and amethyst.

SOUTH DAKOTA—A letter, dated Sept. 21, 1952, has been received from Jack Gelineau, 1001—10th Ave. E., Duluth, Minn. Part of it reads as follows:

"Please find enclosed my renewal for ROCKS AND MINERALS. I have been extremely busy all summer. First of all I had to take two geological field courses in order to finish my course at the University of Minnesota. The first was a mapping course consisting of 4 weeks work in the

Black Hills of South Dakota and while there I had a chance to do some mineral collecting. Many nice specimens were collected, the most noteworthy consist of uraninite, gummite and autunite. The specimens were collected from the Bob Ingersoll mine near Keystone (Pennington Co.), S. D. These minerals occur as follows:

Uraninite—Black crystal in muscovite matrix.

Autunite—Light green scales on muscovite.

Gummite—Yellow to orange alteration product of the uraninite.

"After I had finished the Black Hills trip, I spent 2 weeks studying the geology of the Mesabi and Vermilion Iron Ranges in Northern Minnesota."

TENNESSEE—Chert is mined for road making (as a crushed stone) at Centerville, Hickman Co., Tenn.

TEXAS—Large xls of celestite in pockets of limestone occur 5 miles north of Lampasas, Lampasas Co., Texas.

UTAH—A letter dated August 11, 1952 has been received from Ed Dowse, 329 Reed Ave., Salt Lake City, Utah, and it reads as follows:

"Almost every rockhound around Salt Lake City has at some time been to the Dugway Geode Bed in Tooele Co., Utah. Many people from other states also go there and everyone usually comes away with one or more exceptional good specimens, and plenty of geodes.

"The geode bed is about 120 miles from Salt Lake City. Half of the tra-



Photo by Mrs. Ed Dowse

The party which made the Dugway geode trip

1—Al Brown

2—Mrs. Al Brown

3—Ed Dowse

4—Mrs. C. L. Pettit

5—C. L. Pettit

veling is done on dirt roads, which sometimes can be pretty rough, but it can be made in a day.

"The day my wife and I made the trip was on a Sunday. The weather was warm and dry. The first thing you do is to take plenty of water and gasoline with you. As I said before half of the travel is on dirt roads and when these roads are wet, they are in a very bad condition.

"You take Highway 30 west of Salt Lake City to M. Junction, turn to your left on Highway 36 through Tooele, which is the last place to gas up your car and just before you get to Vernon take the old Pony Express trail road going up over Look Out Pass before winding your way across Skull Valley. While in the valley we came to a dry wash, where there had been no water for 20 years; today a large stream of water is there. After you pass the old Pony Express Station, keep going straight ahead until you meet the road forks; to the left is Topaz. We want the road to the right. The road is narrow, steep, sharp curves. Please proceed with caution. The next turn off is north or to your right. After you cross 2 washes and finally drive right up the wash and when you can no longer locate the road—you are in the geode locality."

"We got out of the car. All that we could see were broken bits of geodes lying all over the ground. Farther up the hill we could see where previous digging had been done in search of geodes. The geodes are found in beds which seem to me, to be a volcanic ash about two feet down. After prospecting several places we found a large geode partly out of the ground probably two or three feet. Having decided to dig it out, getting down and around it, we did run into nice round geodes, the size of golf balls three and four inches through. The geodes were lying all around the very large geode like eggs in a nest. Finally deciding that we had all the geodes that we could cart home, we loaded up the car and found that we had dug two bushels of geodes. Taking one last look at the geode bed, we started on our return journey.

"In my estimation there will be plenty of geodes for the next generation of rock-

hounds, if they are willing to dive in and dig for them."

VERMONT—Three very interesting minerals have been received from George W. Lowe, Box 192, Randolph, Vt. They come from the talc deposit at Bethel, Windsor Co., Vt. A note with the specimens reads: "Three specimens from the talc deposit, one containing rutile, one with actinolite, and one I think is brookite. I can't take credit for discovering this—it was old Prof. Dana himself! He drove up in his carriage many years ago and examined the talc deposit. It is listed under Bethel, Vt., in the old editions. We actually live in Bethel altho our post office address is in Randolph. The crystals are very small."

The matrix of the specimens are all dark green chlorite schist. One contains tiny reddish xls of rutile, another contains dark green acicular xls of actinolite, and the third contains tiny lustrous grayish-black plates of ilmenite (not brookite).

VIRGINIA—A letter dated March 17, 1952 (it got mislaid) comes from D. D. Litteral, Box 183, Dublin, Va. It reads:

"I am sending two specimens. Will you please let me know what they are?

"1. Is a specimen from an outcrop about 6 miles from my home in Dublin (Pulaski Co.). The outcrop is about 2 ft. in diameter and is between limestone. The specimen sent in a piece of float. I have collected a large number of these "rocks" and would like very much to know what they are.

"2. This specimen was picked up by my 9-year-old son (a pebble pup) in an old trap rock quarry a few miles north of Lexington, Va., on the right of U.S. 11. It is the only specimen of its kind that I have seen in this section and I would like to know what it is."

1 is a specimen of quartz casts after some unknown mineral. Most of the walls of the casts have a lustrous brownish glaze which glisten brightly in the light.

2 is a coarse xline greenish-brown sphalerite in dark gray limestone.

WASHINGTON — Barite has been found in small copper-lead veins at the Lead Horse claim on Billy Goat Mountain, Okanogan Co., Wash.

WEST VIRGINIA — Siderite has been mined on Little Sycamore Creek of Elk River in Clay Co., W. Va.

WISCONSIN — A letter, dated Sept. 30, 1952, comes from Robert M. Rich, 1627 Pratt Blvd., Chicago 26, Ill. He writes:

"I am writing on the recent request for further information on the new lead-zinc mine near Hazel Green (Grant Co.), Wisc.

"There are to be found there marcasite xls, galena and calcite, sphalerite xls, and many different types of fossil shells.

"I also visited the mine at Hazel Green which is really 1 1/2 miles out of Hazel Green. Here I found sphalerite xls, calcite xls, marcasite and fossil shell."

WYOMING — On June 30, 1952, when a visit was made to the Colorado State Museum in Denver, Colo., we saw on display a nice greenish platy fuchsite whose locality was given as 20 miles west of Wheatland (Platte Co.), Wyo.

AFGHANISTAN — The Ministry of Mines states that no lapis lazuli was mined during 1951. However, some 270 kilograms of Afghan lapis was sold in Germany for about \$25,000. This lapis had been transferred to Germany from the United States, England, and France where the Afghan Government, for several years, had been unable to obtain a satisfactory price for it. The price obtained in Germany is reported to be about one and a half times that offered in the United States.

(From reports prepared in the American foreign office at Kabul.) — U.S. Bureau of Mines, Washington, D. C. MINERAL TRADES NOTES, July 1952, page 41.

The world's finest lapis lazuli comes from Afghanistan.

ALASKA — Stellerite, a zeolite occurring in flesh red masses and tabular xls (resembling stilbite), is found on Copper Island, in the Bering Sea, Alaska.

AUSTRALIA — Tenorite has been found as black earthy masses in grayish kaolin at the Cadia copper mine, Cadia, near Orange, N.S.W., Australia.

CANADA — A trip was made to a uranium mine in Canada by E. S. Cornelius, Rl, Breckenridge, Mich., who tells about it in his letter, dated Sept. 27, 1952.

"Since the discovery of uranium near Alona Bay, 70 miles north of Sault Ste. Marie, Canada, I have wanted to visit the area to see the country and maybe collect a few minerals. So having a few days off, I took my family and went up to St. Ignace for a few days camping. Saturday, June 21, 1952, we drove north to Sault Ste. Marie, Mich., and crossed over into Sault Ste. Marie, Ont., Canada. We took the Kings Highway No. 17 north to the end of the road. Mileage is given from Sault Ste. Marie, Canada, 00.0 miles — Sault Ste. Marie, Canada, at the ferry dock. 24.5 miles — Black slate cliff on east side of road. Two small veins of quartz cut the slate. Collected a specimen of quartz. 41.6 miles — Chippewa Falls. There is a nice wayside park, with tables and fireplaces, near the falls. The falls are near the road and very pretty. Near the bottom of the falls the rock is of black basalt. It appears to be a dike cutting the granite. At the top of the upper falls there is another basalt dike. From the basalt I collected olivine, also calcite from a crack in the same rock. Near the bridge below the falls feldspar in large crystals can be found. We ate our dinner at the falls and spent some time climbing around the falls and taking pictures. 83.7 miles — Montreal River. This mileage does not agree with the signs along the road, I checked my mileage from the ferry so that would make it about the same. The country is very rough and rugged with high hills of granite. This is the end of the road. The Montreal river flows down

the mountain in a deep narrow canyon with a waterfall at the head of the canyon. Most of the water is used to generate power, yet a large amount of water was flowing over the falls when we were there. The canyon is cut in a pegmatite dike which is about 70 ft. wide. They tell me that small veins of uranium have been found in the canyon. The only mineral I found was feldspar and quartz. I asked if there had been any mining done for uranium and the man I asked told me that only the Camray mine had gone underground. They had dug over a thousand feet of tunnel but were shut down since last fall. He did not think that enough uranium had been found to pay to operate. I asked the location of the mine and he said it was about six miles back at Theano Point on Alona Bay.

"On our way back we saw a sign on a tree just before we came to Alona Bay. The sign read "Camray Mines Ltd." and was on the west side of the road. The road to the mine did not look very good so the children and I walked the short distance. The mine was a tunnel in the base of a small hill of granite. The entrance was barred with small poles. What interested me most was the small rock dump. The rock on the dump was mostly granite and slate. I collected the following minerals:

Pitchblende—small veins in granite.

Muscovite mica—plates up to one inch in diameter.

Quartz and Microcline Feldspar in fair sized pieces.

"Other minerals were probably in the rock dump but I was over a hundred miles from camp and it was getting late so I could not spend much time looking for minerals."

COLOMBIA—A very interesting specimen has been received from Schortmann's Minerals, 6 McKinley Ave., Easthampton, Mass. It is autunite as small green flakes on massive smoky quartz. The mineral comes from Manodel Tigre Mine, Las Isabelas, near Pamplonite, Santander del Norte, Colombia.

CYPRUS—The following item was sent in by Wm. M. Johnson, RFD 6, Knoxville, Tenn.

"On the island of Cyprus in the Mediterranean Sea at Skouriottissa, gold has been mined. The ore is a clay-like material which has the queer property of becoming liquid when pressed between the fingers.

"The gold ore, about 10 acres in extent, overlies a large copper-pyrite deposit. The ancients worked the pyrite deposit leaving a slag pile of about a million tons but did not seem to have worked the gold ore."

DOMINICAN REPUBLIC—Huge salt deposits are known on this West Indian island. These deposits are about 25 miles west of the port of Barahona, are in the form of a range of hills about 7 miles long and are being mined. It has been estimated that the deposits contain about 250,000,000 metric tons of salt. Very fine specimens of transparent cleavages of salt (halite) have come from the salt mines.

ENGLAND—The following letter, dated Aug. 30, 1952, comes from P. D. Boerner, 122 Albert Place Mansions, Lurline Gardens, Battersea SW 11, London, England.

"Just a few lines from this dear little Isle, since my arrival from Alice Springs, Central Australia. I have received the R & M magazine and am enjoying my fourth year in company with you and my fellow Rockhounds. My wife, Una, and I are in England on a year's visit to see relatives of mine and also to tour the country. We have already been to Cornwall and saw many wonderful sights, and investigated Stonehenge thereupon I can only state that the fellows who shifted and built up those massive rocks were ardent collectors and were only to be pitied because R & M was not published in those days.

"We have been to a great many Museums and saw many wonderful collections of rocks, minerals, gems and fossils. In Cornwall we saw many fine examples of serpentine and all over that country the

shops were full of carved and polished pieces. Model lighthouses and ashtrays also bowls—some were very good but the stone was spoilt in most cases. We also saw many abandoned tin mines and went over a few dumps, hence as our journey progressed our little car began to protest at the amount of specimens it had to carry. After a little while back in London, we went to Folkestone in Kent and spent two weeks in that county. On the Warren between Dover and Folkestone (as I'm sure you already know) one can find many fossils, nodules of flint and pyrites. I believe the pyrites are a type of marcasite. As a boy I lived at Folkestone and the local folks call the nodules of pyrite "Thunderbolts" and most of the lads used to have a few thinking that they came from the sky. Anyway, Una and I spent two happy afternoons on the Warren gathering a varied and mixed collection of all there was to be found. While we were on a good patch of fossils we noticed an armoured bulldozer at work near us; when it got close the operator got out and came over and said that we should go away because there were a lot of unexploded landmines about and his job was to drive over the area and explode them, (this spot is in sight of the French coast and the mines were placed there in case of an invasion). So we moved off very smartly but came back two days later when he was not about. Now with you in mind I collected extra specimens and I shall pack and send them this week, when they arrive perhaps you will let me have your opinions and a few ideas about the pyrites in particular. Do they exist as such in the U.S.A. or are they unique to this part of the world? I collected all sorts of pyrites in Central Australia but none of the xls seemed to radiate towards the center like these nodules. Our next trip is to Wales and later Scotland."

A number of specimens have been received from Mr. Boerner. They all come from the Warren, (1½ miles east of Folkestone, Kent, England) which is a wild expanse of tumbled chalk between the cliffs and the shore, of interest to the botanist, entomologist and mineral collec-

tor. Among the specimens were:

Marcasite — Dark brown nodules (rounded 1" diam.), elongated ½ x 2. (¾ inch broken half section of a rounded nodule shows a pale brassy radiated structure). Also a nice marcasite after wood limb section 2½" long and 1½" thick. Small, thin elongated masses also present. Marcasite nodules are very common in the United States.

Quartz (Flint) — Pale gray round concretion completely enclosed by dark grayish chalk—one projection is broken revealing the flint—1½" diam.

Fossils—A number of fossils received such as teeth (dark gray ¼ x ¾); shells (dark gray 1 x 1); ammonites—gray to brown (1½ x ¾" in diam.) and belemnites (slender, translucent in color ⅛" thick and up to ¾" long.)

FRENCH CAMEROONS — Molybdenite was discovered in August 1941 in the Mungo region about 29 kilometers south of N'Kongsamba (French Cameroons, West Africa). The occurrence was not investigated until after the end of the war. Only a few meters of shaft and drifts have been put in, but it is reported that this has been enough to indicate that rich, mineralized lenses appear within a granulite—pegmatite complex. (Consul Thomas G. Mudrock, Elisabethville) —U. S. Bureau of Mines MINERAL TRADE NOTES, Washington, D. C., July 1952, p. 19.

IRELAND—Flat xline masses of ilmenite in quartz, have been found at Breagy Head, S. E. of Sheephaven Bay, Co. Donegal, Ireland.

JAPAN—Fine xls of titanite, of a yellowish-brown color have been found in dioritic gneiss near Kamioka, Hida Province, Honshu Island, Japan.

MEXICO — A letter, dated Aug. 22, 1952, comes from Hollis Page, 1831 N. Berkeley Ave., Pomona, Calif. He writes:

"I have made 4 trips to Mexico and have accumulated enough material that I would like to advertise it for sale.

"Last year I discovered at Mapimi (Durango, Mexico) a small deposit of blue adamite.

"This year I tried to relocate the duftite. The spot where we got it 3 years ago has been all mined out but I located a new pocket and obtained large wulfenite xls covered with duftite (verified by x-ray diffraction pattern at Cal Tech). I intend to write the British Museum about it as they had identified it by x-ray pattern.

"Partial list of minerals from Mapimi: adamite-green

white, blue
aurichalcite
carminite
duftite
hemimorphite
mimetite-green, yellow
wulfenite

SCOTLAND — Near Ely, Fifeshire, Scotland, transparent xls of pyrope garnet (fit for cutting) have been found.

TIBET—Two nice red jade cabochons, brought from Tibet by Sgt. Lee Elmore of Austin, Texas, were displayed at the Rocky Mountain Convention at Canon City, Colo., June 26-29, 1952, by Hugh Leiper, 1700 Rabb Road, Austin 4, Texas.

WALES—Very fine rock xls have been found at Snowdon, Carnarvonshire, Wales.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933 OF ROCKS and MINERALS published BI-MONTHLY at PEEKSKILL, N. Y., for OCTOBER 1st, 1952 — state of New York, County of Westchester.

Before me, a Notary Public in and for the state and county aforesaid, personally appeared **PETER ZODAC**, who having been duly sworn according to law, deposes and says that he is the **EDITOR** and **PUBLISHER** of **ROCKS and MINERALS** and the following is, to the best of his knowledge and belief, a true statement of the ownership, management of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the name and address of the publisher, editor, managing editor, and business manager is **PETER ZODAC, PEEKSKILL, N. Y.**
2. That the owner is: **PETER ZODAC, PEEKSKILL, N. Y.**
3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: **NONE.**
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affidavit's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and that this affidavit has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

Sworn to and subscribed before me this 26th day of September, 1952.

ROSE McCAFFREY
My commission expires March 31, 1953

FIRST COMMERCIAL UNIT TO RECOVER URANIUM FROM PHOSPHATE ROCK BEGINS PRODUCTION

The first commercial unit for the recovery of uranium from phosphate rock has begun operation as a part of the plant of the Blockson Chemical Company near Joliet, Illinois, the U. S. Atomic Energy Commission announced on Sept. 7, 1952.

Research, engineering and construction of the unit were accomplished by the Blockson Chemical Company, which has a contract to supply the recovered uranium to the Atomic Energy Commission.

Uranium occurs as a very minor component of the extensive phosphate deposits of Florida and several Western states. Studies sponsored by the AEC have established the feasibility of recovering these small quantities of uranium as part of the process of manufacturing sodium phosphate chemicals and concentrated commercial fertilizers.

The uranium recovery facilities will be operated in conjunction with the Blockson Company's existing plant for the production of phosphate chemicals near Joliet. Phosphate rock from Florida is used in the plant.

Several other processors of phosphate rock have conducted research and pilot plant studies in the field or uranium recovery, and three companies are building full-scale recovery units. The International Minerals and Chemical Corporation and the Virginia-Carolina Chemical Corporation are incorporating uranium recovery units into plants now under construction near Mulberry, Florida, and the Texas City Chemicals, Incorporated, is building a recovery unit at Texas City, Texas.

THE MICRO-MOUNTER

Conducted by LEO N. YEDLIN
129 Englewood Drive, New Haven, Conn.

The omission of this column from the last three issues of ROCKS AND MINERALS was occasioned by two things, pressure of business, and inertia. Especially the last. But it has afforded an opportunity to accumulate some interesting data, which we pass on to you.

A visit to Walter Bagley's home in Stamford, Conn., resulted in an exchange of micro-mount material, and the acquisition of some old coins. And therein hangs a tale. Walt was with the Transportation Corps during the war, and ferried supplies from the Persian Gulf northward. A short layover at the ancient City of Shush (Susa, in Queen Esther's reign) gave him the opportunity to examine the ruins, and the excavations abandoned by French archeologists in 1902. The place was littered with remnants of clay pottery, and a bit of digging in a clay bank uncovered part of a vase, unusually heavy, even for one completely choked up with hard earth. The weight turned out to be some 200 old copper coins, some cemented together, some free, but all coated with claylike alteration products. (Seems as tho the lady of the house, even in those by-gone days, kept her egg money in a pot on the mantelpiece. . .)

Well, we put the coins under the 'scope, and found the alterations to be cuprite, red, translucent, barely xld; malachite, in earthy masses; flat green bladdered xls, transparent, looking like atacamite;

and others not yet determined. We've always said it and we'll say it again. A micro-mounter can find good specimens anywhere.

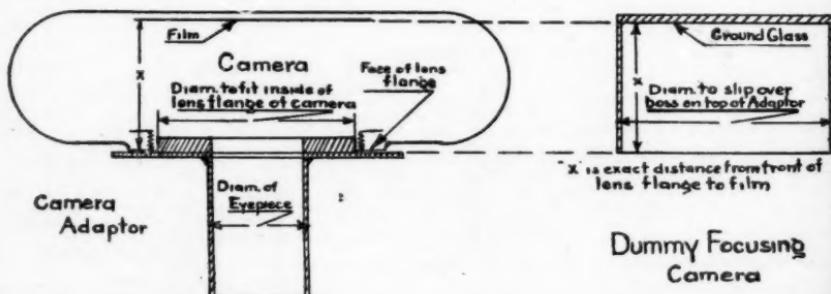
You will recall Carl Hartshorn's article on photomicrography in stereo. He's been doing some further work on the subject, and his findings follow. We've seen the results. They're really something. Here's his letter:

"Dear Mr. Yedlin,

"In connection with my letter appearing in the "Micro-Mounter" of March-April 1951 regarding photographing m/m for stereo viewing, you may be interested to know just how I have finally succeeded in securing reasonably satisfactory stereoscopic slides in color of m/m specimens which view beautifully in the stereoscope and project still more spectacularly on the screen. A tiny bit of acicular malachite magnified to four feet in full color and giving three dimension stereoscopic effect is a sight worth seeing.

"The binocular microscope, in giving two slightly different images of the mounted object, due to the use of two converging optical systems, is especially suited to obtaining photographs of these two different images which form a stereo pair.

"The only accessories needed in addition to a suitable camera are easily constructed. One is an adaptor to couple the camera to the microscope so that the plane



of the film is exactly at right angles to the axis of the microscope. To make such an adaptor, a short tube of the same outside diameter as the eyepieces, is fastened to a thin flat plate having a hole in it the size of the internal diameter of the tube. Soldered to the opposite side of the plate and concentric with the hole is a ring or boss that fits snugly into the lens mount of the camera after the lens is removed.

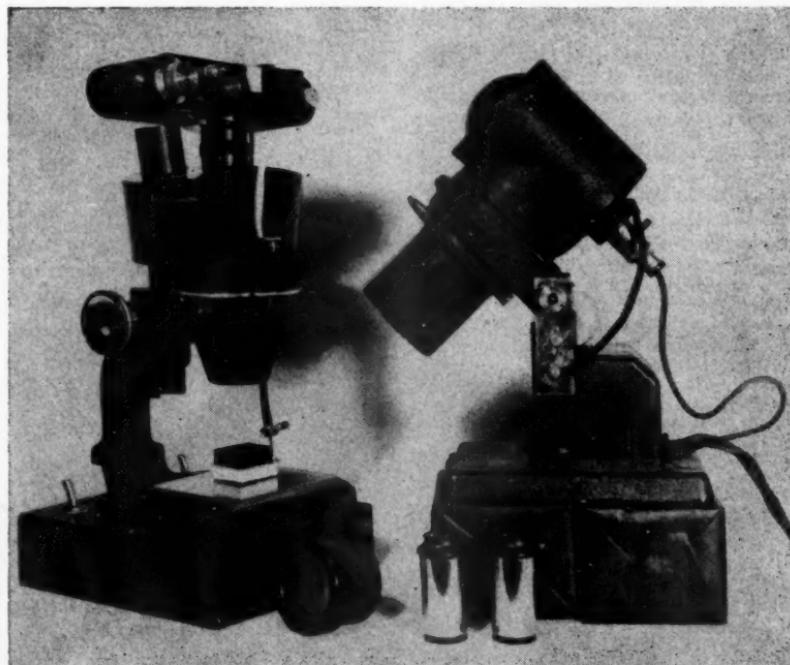
"The only other accessory needed is a dummy camera for focussing. This consists of a tube cut to a length which is exactly the distance from the front of the lens mount to the film plane of the camera. A piece of finely ground glass is then fastened to the end of this tube. The inside diameter of this focussing tube should be a little larger than the ring or boss that fits into the lens mount.

"The procedure for making the photos is as follows:

1. Adjust the m/m on the stage of the microscope to show the best detail of

the specimen, selecting as flat a field as possible and fixing it at right angles to the axis of the microscope.

2. Illuminate the specimen to about the same degree of brightness as is comfortable for normal viewing. A spot light should be used rather than diffused light to accentuate the shadows.
3. Remove both eyepieces and slip the adaptor into one tube in place of one of the eyepieces.
4. Place the focussing dummy on top of the adaptor plate in the position to be occupied by the camera, and focus accurately on the ground glass.
5. Remove the dummy and substitute the camera in its place (after having removed the camera lens which is not used.)
6. Make the exposure by either turning on and off the light or operating the shutter if it is the focal plane type.
7. Repeat the procedure with the other tube of the microscope.



Arrangement of camera and microscope for making stereoscopic photomicrographs

8. Mount the processed pictures in the standard stereo mount.

"I use a Leica camera with tungsten type color film. The exposures range from $\frac{1}{4}$ sec. for very brilliant objects to 1 sec. for dark ones.

"The accompanying photo and sketch show the microscope with camera in place. On the table is the dummy focusing tube. The sketch shows adaptor and dummy for a Leica but any 35mm. camera with removable lens is satisfactory."

Very truly yours,

CARL L. HARTSHORN"

386 Union Ave.,
West Haven, Conn.

And while we're publishing letters, let's include some notes from Lou Perloff at Winston-Salem, N. C. Among other things he says:

"If you have any new working material put it aside for me. There is nothing more pathetic than a guy all set up for business with 2 'scopes and no working material. I nursed John Parnau's stuff in miserly fashion, but that's all taken care of now. Sooner or later I may have to rework my own loose mineral matter. And I have a hunch that there may be things there that may result in some fine and unusual mounts.

"Reminds me of something that we spotted at Paul's (Desautel) house. I had dropped in on my way back from New York. We were looking at some of my mounts. I had a cabrerite from Laurium (Greece) out and I called his attention to some white sprays of xls in the cabrerite.

Lazily I had previously called them mimetite and had forgotten about them. Paul said something about their not looking like mimetite. I took another look and we both spoke at once. Austinite! Have you ever heard of Laurium austinite? Neither had I. Which is why I miss those sessions we had at your home at Long Beach (since removed) and at 110 Wall St., N. Y. (Ford's). It isn't that two guys see more than one. They just complement each other in almost the same fashion that the left and right parts of a stereobinocular microscope do. One takes a look. He sees something. He says something. It starts an idea going in the other's head. When another look is taken something is seen that may have been overlooked a dozen times before. And the progress of human knowledge inches forward."

The Baltimore Mineral Society issues periodically its publication "The Pegmatite." It's a nice piece of work. We have Vol. 2 No. 2 before us now. Included are "A Beginners Approach to Mineral Micro Mounts," by C. W. Smith; "Two Interesting Micro Specimens," by H. Levey; a map of the siderite and microbarite locality at Frostburg, Md.; and much additional worthwhile mineral information. We do not know of the plans for distribution, but an inquiry directed to Paul Desautels, State Teachers College, Towson, Md., will bring an answer.

Hope you've had a good collecting season.



Stereo photomicrograph of acicular higginsite

THE AMATEUR LAPIDARY

Conducted by COMMANDER JOHN SINKANKAS
Certified Gemologist, American Gem Society.

1107 S. Oakcrest Road, Arlington, Va.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

Faceting Fluorite

Much excellent gem material is afforded by fluorites from various localities. The Ohio localities, Kentucky, and others in this general region provide blue, purple, yellow and colorless pieces. A fine green has come from Westmoreland, Cheshire Co., Vermont. An emerald green type comes from Africa. A whole gamut of color is available in this one mineral species from which a suite of gems can ultimately be cut.

Selection of Rough

Rough fluorite is very seldom completely flawless, free of inclusions, and evenly colored. Flaws are most often partially developed cleavage cracks along the easy octahedral cleavage planes characteristic of this mineral. If such splits are present they should be carefully sawed away with a very generous clearance allowed to be sure that none of the flaw extends into the preform. Inclusions of one form or another are almost always present and consist of veins or clouds of fine cavities. Other inclusions may be small crystals of marcasite. Both types of inclusions if present in any significant quantity dull the appearance of the finished stone to a remarkable extent because of the scattering effect on rays of light. Color bands are acceptable if placed so that they lie parallel or nearly so to the table.

Sawing

A very thin "Elgin" type of bronze blade is best since it produces fewest shocks and is less apt to wedge and split the rough prematurely. In this connection, pieces of fluorite are most readily reduced to manageable size by making shallow cuts and then splitting by

inserting a thin knife edge in the slit. A gentle twist will cleave the rough readily and predictably. By splitting the rough, the cleavage planes are kept track of so that the polishing process won't be embarrassed by having a facet fall upon a cleavage plane. Heat in sawing, as in all other processes, must be carefully avoided.

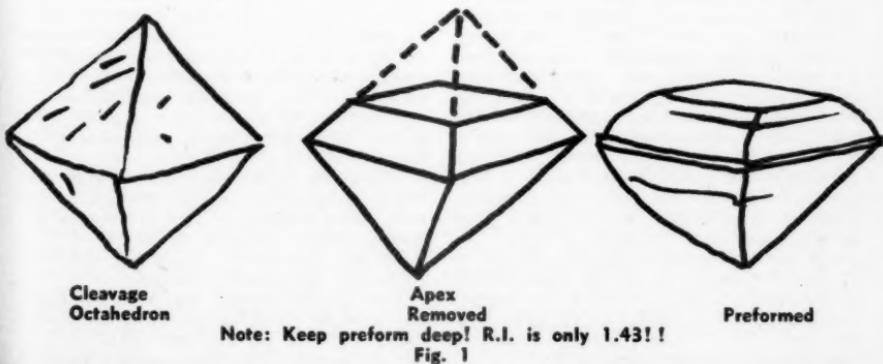
Pre-forming

Use a 220 grit wheel or finer—avoid bumping. If you start with a cleavage octahedron, preform the table by removing one apex of the octahedron (see fig. 1). This will enable you to keep track of the cleavage planes and deliberately overcut or undercut them so as to prevent coincidence on facets.

There are other ways of preforming of course but in each, the lapidary must remember where the cleavage planes lie. It may be advantageous to always leave a "natural," a bit of the cleavage surface, some place on the preform to act as a crutch to the memory.

Dopping

Fluorite is very sensitive to heat, particularly when applied unevenly. No elaborate preparations or equipment are required for dopping but the preform must be gradually brought up to temperature to prevent thermal shock. The heating oven or pan should have a piece of cardboard like that found in the covers of book matches placed on the metal and the stone placed on the cardboard. The alcohol lamp is placed underneath and trimmed to a flame of about $\frac{1}{2}$ inch long. A bit of stick shellac or jewelers chasers cement (both of which have lower melting points than ordinary dopping wax) is placed upon the stone. When it begins to soften, dopp immediately. The dop stick



Note: Keep preform deep! R.I. is only 1.43!!
Fig. 1

should be warmed simultaneously so as to be about the same temperature as the stone. If a face plate is used in the dopping jig, warm it up also or face it with a thin piece of cardboard.

In turning the stone around to finish the other half, avoid touching the stone with the naked flame, in fact it may be safer to heat the shank of the dop stick, remove it and then reheat the stone as before and re-dop. From experience I have found the transfer of stones from one dop to another to be the greatest single hazard in the treatment of thermosensitive stones. For fairly large stones as was the case for two fluorites which I cut lately of 90-100 carats each, the dopping was carried on separately and no attempt was made to re-dop using the transfer jig.

Grinding

Removal of material is very rapid even on a copper lap charged with 1200 diamond. Rough grinding on coarse diamond laps of about 400 grit is not recommended due to the splitting tendency of the sharp diamond teeth. Use plenty of water in grinding—guard against over-cutting.

Polishing

Cerium oxide used very thinly on a lucite lap will polish fluorite but great care must be employed. The lap should be absolutely clean before starting and the cerium should be prepared beforehand by placing about $\frac{1}{2}$ teaspoonful in the bottom of a glass plus a few grains of Tide or some other detergent, stirring vigorously to allow coarser particles to settle. The agent is then applied with a clean swab of surgical cotton, using only the milky water in the top of the glass. An occasional swishing with the cotton swab will keep the powder from settling out completely.

Altho lucite and cerium will do the trick, this combination is very apt to scratch and if the lucite is allowed to dry off for any reason, the heat generated is almost certain to crack the stone. It is by far safer to use a wood lap and tin oxide for fluorite if you have them available. Previous articles have mentioned wood laps and the reader is referred to these for additional guidance. As an emergency measure, the amateur can make his own wooden lap out of birch or maple by selecting a piece of *clean, flat* stock in a lumber yard, cutting a disc and drilling a hole for his master lap bolt. No sandpaper of any sort dare be used for smoothing the wood—only sharp bladed tools such as planes or jointers. The wood needs no further preparation for polishing, just apply a thin slurry of tin-oxide and water and commence polishing. After a time the wood will warp and will have to be discarded. If readers can obtain birch or maple *waterproof* plywood of $\frac{3}{4}$ inch thickness or more, this material will be considerably better in the long run. Leather stretched tight on some suitable backing is also useful for "scratchy" and soft materials though not necessarily fluorite.

Because yielding laps like wood or leather are apt to round off facet junctions, light pressure in polishing takes longer but improves the sharpness and sparkle of facets. Running soft laps at high speed will accelerate the process of polishing and serves to overcome somewhat the longer time required when using light hand pressure.

Fluorite is apt to be complexly and intimately twinned. This shows itself by the rippled appearance of cleavage faces which should theoretically be absolutely flat if the atomic structure were to be unvarying in direction from one end of the crystal to the other. Occasionally this twinning will cause large facets to polish well on one side and frost up on the other; in this case, change direction of polishing until one is found which will polish evenly all over. Heavy pressure tends to promote frosting while light pressure will tend to eliminate it. If and when it happens experiment until the optimum pressure, direction and lap speed is found which will give best results. Your goal is a scratch-free fluorite. By using the wood lap and tin oxide, I was able to turn out the two large ones without a scratch—you can do it too!

Have You Tried--

No, not Wheaties—but there are a lot of rocks and minerals which have possibilities and are ignored by the average cutter. Why not cut cats—eyes?—any fibrous material is a possibility. For example, the fine straight-grained tigers-eye material turns out beautiful eyes, sharp and clear. Actinolite inclusions in quartz often found in metamorphic rocks, especially quartzites, turn out dark green cats-eyes. Silky looking tourmalines filled with large numbers of tubes are par excellence for this purpose. Morganite beryl makes eyes of fair quality depending upon the number of tubes. Tremolite from Canada is also useful and produces a fine white line against a grayish green background. Scapolite from that country also produces an eye but not a very sharp one. Some beryls show an eye but the vast majority are feeble. Very rarely emerald and aquamarine have enough tubes in them to produce a splendid and valuable eye. From a piece of really blue aquamarine rough collected by Dr. Pecora of the U.S.G.S., I was able to produce two magnificent cats-eye aquamarines of about 4 carats each. The eyes are very sharp and distinct and show white against the blue body color of the stone. Rare—ask a gemologist if he knows of one.

Williamsite from Maryland is sometimes found straight-fibred and can produce an unusual and beautiful eye which is however, not very prominent. Some serpentine from California have been noted in the past for their ability to produce lovely cats-eyes.

The classical cats-eyes are chrysoberyls and are apt to be found wherever chrysoberyls are found. Both the Far East and Brazil produce cats-eye material of the finest quality. The chry-

soberly localities in Maine produce cats-eye material but too small as far as I know, to permit cutting into gems.

Some of the brownish willemite from Franklin, N. J., is also capable of producing eyes of a feeble but interesting kind. The willemite is basically green in color but the inclusions give not only the color but also the eye in the cut stone.

From Maine I brought back some fibrous and silky looking spodumene from the lower pit on Newry. This fractious material, if it can be cut, should produce eyes.

Occasional pieces of quartz, thickly populated with rutile needles in roughly parallel orientation, make unique cats-eyes. Look for this one, you will have something of genuine interest if you ever get a piece of suitable rough.

As a general rule, the best eyes are found in stones with long and narrow inclusions. Platy inclusions such as occur in most beryls, feldspars, and Canadian scapolite, produce rather wide bands of light and weak ones at that. An abundance of exceedingly narrow long tubes in the rough guarantees a very sharp and brilliant eye of the most value.

Orientation of the rough is simple—the tubes or platy inclusions must lie in the plane of the base of the cabochon. If the stone is an ellipse the inclusions must be *across* the long axis of the cabochon. Material of the best kind that is, filled with fine, long, and narrow tubes, can be cut quite shallow without serious detriment—the eye will still be sharp. If the inclusions are few in number or of the platy kind, the crown of the cabochon must be high. In any case the crown must be smoothly curved especially on the top. Misshapen or irregularly curving tops will cause the eye to bend or waver.

Ultra-Violet Industrial Inspection Equipment

A new BLAK-RAY ultra-violet source designed specifically for industrial fluorescent inspection, processing, and packing operations, is announced by Ultra-Violet Products, Inc. of South Pasadena, California.

The principle of fluorescent inspection is based on the fact that many substances, when activated by ultra-violet energy, emit a visible glow which is called fluorescence. Observation of the color, intensity, and area of this fluorescence enables the observer to make accurate qualitative and quantitative determination of materials and objects being inspected. Many substances which are not normally fluorescent can be made so by the addition of fluorescent phosphors or dyes which are invisible in ordinary light.

Fluorescent inspection is proving valuable in a number of vastly different fields such as the detection of decay and fungus in agricultural products, the detection of flaws in metal castings and machined parts, and in the determination of complete coverage where transparent or hard-to-see sprays, fillers, and coatings are applied on wood, rubber, plastic, and metal. It is also especially useful for the detection of flaws and dye variations in textiles, and for observation of "invisible" code and number markings on fabrics and other materials.

The new industrial-type BLAK-RAY Model XXX-40 covers an area of 20 to 40 square feet with intense (non-injurious) long wave ultra-violet radiation. The fixture is dust-proof and vapor-proof, with a spectral-finish aluminum reflector for maximum ultra-violet intensity. Three 40-watt tubes are used which are made of a new self-filtering glass that increases the fluorescent response to the point where inspection operations can be handled in a normally lighted area.

BLAK-RAY tubes are rated at 3000 hours, they burn cool, start instantly, and may be turned on and off at will with no warm-up period for reaching peak ultra-violet emission and no cooling-off period required before restarting. For full information on the technique of fluorescent inspection for your particular application, write Department R & M, Ultra-Violet Products, Inc., South Pasadena, California.

BOOK REVIEW

Treasure Hunting in Maine—Gems and Minerals by Jean Blakemore, published for the Smiling Cow Shop, Boothbay, Maine, 1st. edition. July 1952—paper cover, plastic hinge, no illustrations, 118 pp., \$2.00

The best things that I can say about this book are that it is easy reading and is well gotten up in form at and style of type. Numerous inaccuracies, vague and oftentimes misleading directions, errors in spelling appear in this book which might not have been, had the information been checked with a standard mineralogical text and the proofs studied more thoroughly.

Unfortunately the locality information has many errors and scanty directions in spite of the fact that one of the stated purposes of the book is a guide to collectors to collecting sites.

So much for locality information. Other sections of the book describe in some detail the nature of pegmatites and the variety of minerals found therein. Another section tabulates and describes "Families of Maine Gems" while another describes the preparation of specimens for display in the cabinet.

J. Sinkankas

THE SAND COLLECTOR

Conducted by PETER ZODAC, Peekskill, N. Y.

Items on interesting sands wanted.

Please send them in.

Diamondiferous sand from Arkansas

A most interesting sand, from the world famous diamond mines of Murfreesboro, Pike Co., Ark., has been sent in by Mr. and Mrs. Richard Buhlis, owners of the House of Crystals, 2206 Central Ave., Hot Springs National Park, Ark. Unfortunately we could spot no diamonds in the sand.

This is a coarse grained brownish sand from the Crater of Diamonds at Murfreesboro and consists almost entirely of dark gray to brownish peridotite with a few grains of whitish quartz. Peridotite is the rock in which diamonds occur but as stated above, not even a tiny diamond grain could be found in the sample received.

Magnetite and River sands from Yuba River, Calif.

From the South Fork of the Yuba River, Bloomfield Mining District, Nevada Co., Calif., we have received two sand samples from B. E. Sledge, Sr., of the Sterling Shop, 8679 Castro Valley Blvd., Castro Valley, Calif.

One is a magnetite sand—black and fine grained. It consists entirely of nice round black grains of magnetite.

The other is a river sand. It is a fine grained grayish-black sand consisting of quartz (colorless, smoky, brownish), black magnetite, black ilmenite, some green epidote and quite a lot of zircon (colorless but fluoresces orange under the Mineralight).

Dune sand from Indio, Calif.

The label with this interesting sand reads: "From the sand dunes of the Colorado Desert (at Indio, Riverside Co., Calif.). It is Pleistocene Lake Cahuilla sand containing semi-fossil *Paludestrina protea gould*. From 3 miles west of Indio, Calif."

This is a fine grained gray sand consisting of quartz (colorless, smoky, brownish) with some black magnetite and lots

of small, white, complete semi-fossil shells. It was donated by W. Scott Lewis, 2500 N. Beachwood Drive, Hollywood 28, Calif.

Black sand from San Diego, Calif.

In the city of San Diego, San Diego Co., Calif., is found an interesting black sand. A sample of this sand, from a beach on the Pacific Ocean, has been sent us by Plummer's Minerals, 4720 Point Loma Ave., San Diego 7, Calif. This is a fine grained black sand consisting chiefly of black magnetite, with minor amounts of colorless quartz, greenish epidote, colorless zircon (fluoresces orange under the Mineralight) and a smaller amount of red garnet. A letter dated Sept. 1, 1952, from Plummer's Minerals, reads:

"The black sand from San Diego is quite an odd occurrence. It is found just one block from our mineral store at the foot of the cliffs on the beach. It occurs only in an area about 100 feet square and is constantly churned up and deposited by the surf. It no doubt erodes from an underground or underwater deposit."

"A Los Angeles firm has dug and hauled this material 130 miles to use as a coating for roofing. This has been going on for years but few San Diego rock-hounds know about it. Odd that our new store should locate less than 1,000 feet from a commercial mineral deposit."

"Tell your readers we will gladly mail a 1 ounce sample to any of them who will send us a 3c stamp."

Geode sand from Jamestown, Ky.

Here is a unique sand that was sent us by Bob Barnes, 3930 Brookfield Ave., Louisville 7, Ky. This sand was found inside of some quartz geodes collected along the shore of Lake Cumberland, a new TVA lake, 10 miles south of Jamestown, Russell Co., Ky. It is a coarse sand, brownish in color, and is all quartz—many lustrous terminated (some doubly

terminated) rock crystals but most crystals are heavily stained brown by limonite.

This reminds us of the many limonite geodes we used to find in New Jersey and elsewhere that were full of sand—we would break open the geodes, throw the sand away, and if the broken geodes looked interesting they would be put into our collecting bag otherwise they, too, would be thrown away. How we now wish that at least one sample of the sand had been kept.

Gold bearing sand from Byron, Maine

"I am sending you a little sand concentrates from crevice mining at the East Branch, Byron, Maine. Probably garnet, ilmenite and magnetite, staurolite, and perhaps one or two specks of gold.

"I went up there on the 27th but did not get to a good place—but did get a little gold to serve for a sample. It was a very hot day but that did not extend to the East Branch and we had a wonderful day—one to remember when the snow comes.

"Recent visitors were Commander Sinskakas, Cedric Gleason and Dr. A. H. Hopkins."—from a letter dated Aug. 29, 1952, received from Charles F. Marble, Buckfield, Maine.

Maine has a gold mining area and it is located at Byron in Oxford County. From the stream known as East Branch, Mr. Marble has sent us an interesting sand sample. This is a coarse grained dark brown sand consisting chiefly of pinkish garnets and silvery mica schist. The garnets are gemmy little dodecahedron crystals (many show sharp crystal faces). The mica schist is iron stained (brown) and many fragments show garnets imbedded in them. Other minerals which are present in very small amounts are quartz (colorless, smoky), silvery muscovite, black magnetite, and black staurolite. No gold could be spotted but it may be present. Some of the sand grains are so fine that they sifted through the cloth bag in which they were sent.

Mud Pocket Sand from Middleville, N. Y.

Here is another interesting sand. It was sent in by Claude H. Smith, Box 291, Geneva, N. Y. In his letter, dated Sept. 10, 1952, we read:

"Under separate cover I am sending you some sand with an interesting history. It was found this year at the bottom of a mud pocket under about 5 feet of rock at Middleville (Herkimer Co.), N. Y. The pocket contained Herkimer "diamonds" and groups of crystals up to 4 inches.

"Technically I shouldn't call it sand. Debris would be a better word, but then isn't sand debris? It is composed of angular fragments of Little Falls dolomite rock, dolomite crystals, and Herkimer County "diamonds."

"Your magazine is still tops. Best wishes!"

This is a coarse grained dark gray sand consisting of rock crystals (some perfect doubly terminated crystals, and some containing dark brown inclusions; some are lustrous "diamonds"), grayish-white dolomite crystals; grayish dolomitic limestone; and a minute amount of black magnetite.

Cave sand from Howe Caverns, N. Y.

On May 7, 1952, the conductor of this department with his cousins, Edward and Margie Bourne, and Emily Karolack, made a visit to New York's famous Howe Caverns located in the little community of Howes Cave in Schoharie County. This is a commercial cave and one is not allowed to do any collecting of the material which forms the cave proper but the guide had no objections to us collecting some sand from that part of the Caverns known as the "Silent Chamber." The "Silent Chamber" is a small room at the end of a long, narrow, (in spots very narrow), twisting passageway. The "Silent Chamber" is down 166 feet below the surface and in some way sand and clay are washed into it.

The sand is dark gray, medium grained and not at all attractive. It consists of quartz (colorless, smoky, milky—some slender smoky quartz crystals) with gray limestone; tiny gray fossil shells also present. Lots of clay was associated with the sand when collected and this clay had to be washed out before the sand could be examined.

River sand from Castleton, N. Y.

Directly in from the railroad station at Castleton - on - Hudson, Rensselaer Co.,

N. Y., is a small sand beach on the Hudson River. The beach is about 200 feet long and 50 feet wide and it was seen many times by the conductor of this department—but always from a railroad car and the train never stopped in the little town. On Saturday, Aug. 23, 1952, a trip was made by auto to Albany, N. Y., with his cousin, Edward Bourne, and on the return a stop was made at Castleton for the purpose of collecting some sand. We had the beach all to ourselves as no one was around, not even at the station, and no trains went by either which was odd as it is the main line of the New York Central.

The sand collected is medium grained, dark gray, and consists chiefly of quartz (colorless, smoky, brown) with some black biotite, red garnet, black magnetite, silvery muscovite, and dark gray sandstone.

River Sand from Memphis, Tenn.

Memphis, in Shelby Co., Tenn., is the largest city in the State. It is on the Mississippi River but near it, on the north and east, is Wolf River. From Wolf River a nice sample of sand has been sent us by Glen E. Kiser, Douglass, Kansas. This is a medium to fine grained dark gray sand and all quartz, mostly colorless quartz but milky and brownish also present.

Oolitic sand from Bahama Islands

Some few months ago we received a nice sample of oolitic sand from A. Wentworth Erickson, III, Mattheutow, Inagua, Bahamas. The sample comes from Great Inagua Island on which he resides.

This is a white, medium grained oolitic sand consisting entirely of rounded calcite concretions which fluoresce yellow under the long wave light.

Beach sand from Crystal Beach, Ont., Canada

Some few months ago we received a sample of sand from Rev. Wm. J. Frazer, 625 Main St., Moosic 7, Penn., that had been collected by Mrs. Martha Hoover, 619 S. Main St., Old Forge, Penn. The sand comes from the noted Crystal Beach on Lake Erie in Ontario, Canada.

This is a fine grained gray sand consisting almost entirely of quartz (chiefly colorless but brownish also present) and a

little black magnetite.

Crystal Beach is a popular summer resort on Lake Erie.

Olivine sand from Galapagos Islands

During World War II, Pvt. Gabriel (Skip) Dziadik of Peekskill, N. Y., was stationed in the Galapagos Islands and while there shipped his cousin, (Editor of R & M) some minerals and sands from the islands. In this shipment was a nice sample of olivine sand from Seymour Island (west shore).

This is a fine grained black sand consisting chiefly of olivine (green to dark green) with about 10% of white to brownish sea shells. Many of the olivine grains are of gem quality while the shells are nicely rounded. Some olivines are so dark they look like obsidian.

The Galapagos are a group of small volcanic islands in the Pacific Ocean crossed by the equator. They are about 650 miles due west of Ecuador to which country they belong.

(Reference—"Some minerals of the Galapagos Islands," by Private Gabriel Dziadik, ROCKS AND MINERALS, January, 1945, pp. 7-9—unfortunately this issue is all sold out).

Magnetite sand from Loreto, Mexico

An interesting sand has been donated by Dr. H. H. Nininger, Box 1171, Winslow, Ariz. This is a magnetite sand that was collected on the beach at Loreto, which is on the Gulf of California.

This is a fine grained black sand consisting almost entirely of black magnetite—nice rounded grains. A few grains of green epidote are also present.

Loreto is a small town in Lower California, Mexico.

Beach sand from Failolo, Samoa

Failolo is a small village on the west coast of Tutuila Island, Samoa Islands. From the beach at Failolo we have received an interesting sand that was sent us by Max Haleck, Pago Pago, Tutuila, Samoa.

This is a beautiful light brown fine grained sand. It seems to consist almost entirely of broken up sea shells (white, brown, gray, red, pink) with some light greenish-yellow gemmy olivine and some black magnetite. Some of the shells flu-

oresce pale cream under the long wave light.

Olivine sand from Isle of Skye

In an old encyclopedia (Johnson's Encyclopedia, New York, 1888, Vol. VII, p. 279) is the following item:

"Skye, an island of Scotland, the largest of the Inner Hebrides, belongs to the county of Inverness, from the mainland of which it is separated by the channel of Kyle Rhea, half a mile broad. Area, 547 sq. m. The name of the island, *Skye*, means in the old Scandinavian tongue, "cloud," and is very appropriate, for it always rains here; the days during the year on which no rain falls are very few."

From the northern part of this island, near Duntulm Castle, we have received a most interesting sand sample. The label accompanying the sand reads:

"Olivine sand—comes from a small bay 500 yds. S.S.W. of Duntulm Castle, Kilmuir Parish, Isle of Skye. Collected by Inspector W. Cannon of the Glasgow (Scotland) Police Hdg."

This is a dark green medium grained sand consisting chiefly of olivine (dark green, gemmy) with quartz (smoky) and black magnetite. Many coarse fragments of white and brown shells also present.

The sand was donated by Sandy Ramsey, 1015 Aikenhead Road, Kings Park, Glasgow S4, Scotland.

Creek sand from Magnet Cove, Ark.

Some months ago we received a sample of sand from Billy Laughlin, Rt. 1 Box 425, Clinton, Md. The sample comes from Cove Creek in Magnet Cove, Hot Springs Co., Ark.

This is a dark grayish-brown coarse grained sand consisting of biotite (blackish plates altering to limonite), clinochlore (bright green sharp xls and also large plates—it may possibly be green biotite); hematite (dark red rounded grains); limonite (dark brown rounded grains); magnetite (black grains); quartz (in very small amount and smoky); and rutile (black lustrous black grains).

Quartz sand from Sheridan, Ill.

Two samples of sand have been received from William Penn, 139 Fair St., Sycamore, Ill. His letter, dated June 13,

1952, gives some information on the sand's occurrence. The letter reads:

"Inclosed find 2 samples of sand. They were picked up just across the Fox River from Sheridan (La Salle Co.), Illinois. This is about 75 miles southwest of Chicago, and just south of Somonauk, Illinois. In this area are some outcrops of sandstone. One of these samples, marked "Erosion," was loose sand laying on a ledge of one of the outcrops. The other, marked "Wash," was just down stream from this sand outcrop and is a bank built up evidently from sand washed from the outcrop by a small creek. I believe this sand is from the same outcrops which are quarried further south around Ottawa and are famous as a source of silica sand. In fact glass factories operate around Ottawa. About 30 years ago a small quarry did operate in the area to mine the stone. They are just north of famed 'Starved Rock' of Indian legend which is a high promontory overlooking the Illinois River. This promontory is of sandstone. I believe technically it is called St. Peter Sandstone and underlies the entire Chicago area. It outcrops around Ottawa, Ill., then dips down and again outcrops in Wisconsin thus putting the Chicago area in a huge bowl."

The "Erosion" sand is grayish, medium grained and all pale brownish quartz.

The "Wash" sand is dark grayish, medium grained, and is mostly quartz (colorless, brownish, smoky) with some black magnetite.

Quartz sand from Pownal, Maine

Mrs. Ruth M. Wentworth, 135 Maine St., Portland 5, Maine, has sent us an interesting sand sample which was received a few months ago. This sample comes from Pownal, Cumberland Co., Maine. The label with the sample reads:

"Sand from Pownal, Maine, about 5 miles from the Desert of Maine. There are about 4 acres of this sand and so deep that it is like walking on the beach. This was part of an ancient sea during the last ice age and when the ice melted rapidly it caused the land to spring back and the sand to rise above the clay. There are several of these spots now—one is near Norway, Maine. I also saw a similar place

near Montreal."

This is a very fine grained grayish sand and consists chiefly of quartz (colorless, brownish) with muscovite and a little black magnetite.

Beach sand from Mayo Beach, Maryland

There are some nice beaches on Chesapeake Bay and one of them is Mayo Beach in Anne Arundel Co., Md. A nice sample of sand from Mayo Beach has been sent us by our cousin, Myrtle Phillips of 2625 17th St., NE, Washington 18, D. C.

This is a coarse grained gray sand consisting entirely of quartz (chiefly colorless but white, smoky and some brownish also present).

Iron sand from Iron Mt., Michigan

This is a pretty reddish-brown sand. It is medium grained and consists chiefly of iron stained (reddish-brown) quartz. Reddish hematite is present in considerable amount and in smaller amount occurs black magnetite.

The sand has been donated by R. F. Henley, 4075 19th St., San Francisco 14, Calif.

Lake sand from Wallowa Lake, Oregon

In the northeastern corner of Oregon, in Wallowa County, is Wallowa Lake. From this lake we have received a nice sample of sand from Arthur W. Browne, 623 Palo Alto Ave., Mountain View, California.

This is a dark gray medium grained sand consisting of quartz (colorless, whitish, smoky), feldspar (whitish), biotite (black) and magnetite (black).

Garnet sand from Lake St. John, Canada

Lake St. John is an almost circular body of water, about 25 miles in diameter, in Quebec, Canada. From a beach on this lake we have received an interesting sample of sand from Stanley I. Perham, owner of Maine Mineral Store, West Paris, Maine. Mr. Perham informs us that the sand was collected in panning for gold.

This is a fine grained dark red sand consisting chiefly of red garnet, black magnetite, colorless quartz, green epidote, and colorless zircon (fluoresces orange under the Mineralight).

LOOKING BACK - - - -

Twenty-Five Years Ago in ROCKS AND MINERALS

December, 1927, Issue

The Zeolite Localities of Nova Scotia, by Morrell G. Biernbaum, pp. 126-127.
The zeolite localities of Nova Scotia are world famous for their fine minerals, and Mr. Biernbaum described his visit to them.

Metal Discoveries of Antiquity and Today, by Edward Cahen, pp. 128-130. Mr. Cahen, a British author of a famous book, "The Mineralogy of the Rarer Metals," sent us a number of interesting articles which we were very glad to print.

Phosphorescence of Minerals, Part 1, by E. Mitchell Gunnell, pp. 130-131. This is the first article we ever printed on mineral luminescence and we are very happy to say that Mr. Gunnell is not only still with us but is also one of our valued advertisers.

A Compilation of Gem Names, by Gilbert Hart, pp. 132-135. This was the first installment of the longest list of gem names ever printed up to 1927. The list

was arranged alphabetically and ran through many issues.

Arranging the Mineral Collection, by John Melhase, pp. 136-138. Another article on a subject which was vitally needed 25 years ago.

Collecting in Oregon and Idaho, by H. C. Dake, pp. 138-139. This was the first article sent R & M by Dr. Dake, who was at that time, and still is, one of the most enthusiastic mineral collectors in the country. As everyone who calls himself a mineral collector knows, Dr. Dake is the Editor and Publisher of THE MINERALOGIST.

Notes and News of Minerals of the Rarer Elements, by O. Ivan Lee, pp. 140-141. Another interesting installment — Germanium and its Occurrence — by Mr. Lee who is still with us.

Paleontology Department, conducted by Benjamin T. Diamond, pp. 142-143. In this issue, Foraminifera was featured.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

Orange Belt Mineralogical Society

The Orange Belt Mineralogical Society held its last picnic of the year at Sylvan Park, in Redlands, Calif., Sunday, September 8, 1952. After the picnic, the meeting was called to order by Mr. A. F. Dosse. Plans were discussed in regard to the coming "Gem and Mineral Show" which will be held October 25 and 26, at the Orange Show Building in San Bernardino.

The Thumb-nail group of the Orange Belt Mineralogical Society met at a pot-luck dinner Friday, September 6, at the home of Mr. and Mrs. J. E. Wait in Riverside, Calif. Mrs. Robert Boyler had charge of the lesson for the evening. Mrs. Boyler had a large number of copper sulphate crystal groups of different sizes which she explained she had made by suspending a small particle of copper sulphate (Bluestone) in a saturated solution of copper sulphate dissolved in water. She very generously passed the crystals around so that we might each have one for our collection. The next Thumb-nail meeting will be held at the home of Mr. and Mrs. George Tyler in Redlands.

October Meeting

The Orange Belt Mineralogical Society had its first meeting of the fall at San Bernardino Valley College on October 7. Professor Gros talked on California Earthquakes. His talk was illustrated with slides he had taken while flying over the many faults in Southern California. Mr. Gros said that seismographs show that in this area minor earthquakes are going on continuously. He said that most often the quakes are caused by huge blocks of land slipping horizontally past each other. According to Mr. Gros, it is impossible to determine just where or when an earthquake of major intensity will occur.

The Thumb-nail group of the Orange Belt Mineralogical Society met at the home of Mr. and Mrs. Tyler, October 3rd. The group took up the study of Cuprite, the only one of the copper minerals, except native copper, which has a red color. Mr. Dosse showed some specimens of ordinary cuprite and a beautiful specimen of that very rare variety of cuprite, chalcocite. Chalcocite resembles tiny scarlet hairs growing out of solid rock. This specimen came from a copper mine at Bisbee, Arizona.

Ray Scherzinger
6991 Valley Way
Riverside, Calif.

Geological Society of Minnesota

The Geological Society of Minnesota announces a series of lectures on the principles of geology to be given by Dr. W. C. Bell, professor of geology at the University of Minnesota Tuesday evenings 7:30 to 9:00 P. M. at the Museum of Natural History auditorium on the university campus.

This year's series of illustrated lectures will enable those who are not acquainted with geology to learn the fundamentals, and those who have had a long acquaintance with the subject, to make a good review.

This invitation is not restricted to members of the Society, but is extended to anyone interested in geology and related sciences. Following is our schedule.

- Dec. 2—Igneous Rocks
- Dec. 9—Metamorphic Rocks
- Dec. 16—First Attempts at Earth History
- Jan. 6—Age Of The Earth And Its Interior
- Jan. 13—Earth Movements
- Jan. 20—Origin Of The Earth
- Jan. 27—Modern Life And Fossilization
- Feb. 3—Survey Of Geologic History
- Feb. 10—Geologic History Of Minnesota
- Feb. 17—Evidence Of Evolution
- Feb. 24—Mechanics Of Evolution
- Mar. 3 —Man's Evolution

This course, an abbreviated treatment of Physical and Historical Geology, will make liberal use of "A Textbook of Geology" by Robert Garrels (Harper & Brothers, 1951, \$5.00).

The Program Committee
Henry Sommers, Chairman

Mineralogical Society of So. California, Inc. (Pasadena, California)

The Mineralogical Society of Southern California at Pasadena held its first meeting of the 1953 season on Monday evening, September eighth. Robert Brewer entertained fellow members by showing many beautiful slides taken on his recent trip into the Canadian Rockies. The slides were accompanied by a most interesting and informative talk by Mr. Brewer.

The September field trip was held on Sunday the fourteenth at which time members traveled to the Palos Verdes Barite location for crystal collecting. Many fine specimens were obtained.

Mrs. Guildford Rudley
Publicity Chairman
542 Manzanita Avenue
Sierra Madre, Calif.

Nutley Mineralogical Society

June Field Trip, June 14, 1952

The Kibblehouse trap rock quarry at Perkiomenville, Pennsylvania, was the site of the Nutley Mineralogical Society's June field trip. An earlier trip, scheduled for May, had been rained out, and rescheduled for June 14th. We were lucky in that we had excellent weather, albeit a little too hot, and arrived at the quarry about lunchtime. Evidently we had arrived between blasts for there was little to be seen except some average specimens of magnanatrolite, fluorescent calcite, and pyrite. Two interesting specimens turned up by one of the members dated from the days when the quarry was worked as a copper mine and were a specimen of malachite on trap and another consisting of chalcocite masses on trap.

As it seemed that the quarry was going to produce little that day, we decided to take the 32-mile cross-country hop necessary to bring us to the French Creek Mines at St. Peter's, Pa. The dumps were hot, as usual, and very little digging was done; enough however, to bring to light excellent pyrite xls., chalcopyrite, byssolite, calcite, and magnetite. A good find was made by Bevan French and consisted of powdery erythrite, a rare mineral at French Creek, with chalcopyrite.

Since it was getting late, we headed home, ending what was finally a good trip after a rather poor beginning.

September Field Trip, September 13, 1952

The Nutley Mineralogical Society had adjourned over the summer, and it was decided that the first fall trip would be the promised return to Judd's Bridge and Roxbury Station, Conn. Again, Saturday the 13th dawned bright and clear, and as we turned off the Merritt Parkway and headed towards Roxbury, we decided to go to Judd's Bridge and stop on the way back at the Station.

The quarry at Judd's Bridge yielded, as before, excellent specimens of kyanite and two of the members present were lucky to find nice specimens of ilmenite in quartz. The time spent at the quarry was not great, due mostly to the mosquitoes, but it was well spent.

Having eaten lunch en route to Roxbury Station, we arrived and parked behind the lumber yard. We hunted, thereafter for the mine, but encountered only granite quarries, and finally we settled for an ore dump behind a deserted smelter, where excellent specimens were found. The minerals included large pyrite xls. (to $\frac{1}{2}$ inch), siderite, sphalerite, and galena.

Again, driven off by heat and mosquitoes who didn't read calendars, we returned to the car and met several members of the Rockland County Mineral Society, with whom we spent some time trading Judd's Bridge kyanite for some excellent quartz crystals that they had found in the granite rock. We returned home, arriving about 6 o'clock with full bags of ex-

cellent specimens and a sense of accomplishment.

The Nutley Mineralogical Society has recently joined the Eastern Federation of Mineralogical and Lapidary Societies, and the club is planning to have an exhibit of minerals at the Convention in October. The club holds field trips about once a month to well-known localities, and any interested persons should contact the secretary.

September Meeting, Sept. 19, 1952

The club was fortunate, at the September meeting, to have as guest speaker, Mr. William Aitken, of Westwood, N. J., executive vice-president of the Eastern Federation of Mineralogical and Lapidary Societies. The meeting was held at 8:00 P. M. at the home of Bevan French.

Mr. Aitken spoke on the Eastern Federation to the members present at the meeting. After the meeting, the club officially joined the Eastern Federation.

Any person interested in joining the Nutley Mineralogical Society or in going on any field trips should contact the Secretary for any information.

Bevan French, Secretary
98 Alexander Avenue
Nutley 10, New Jersey

Midwest Federation

(Plans for 1953 Convention)

"MEET ME IN ST. LOUIS" will be the theme of the Thirteenth Annual Convention of the Midwest Federation of Mineralogical and Geological Societies to be held at St. Louis University in St. Louis, Missouri, according to an announcement just released by Elmer Headlee, president of the St. Louis Mineral and Gem Society.

The St. Louis organization, Headlee said, will serve as host society for the convention and he indicated that plans are now being made to make the 1953 convention the biggest and best held to date. Convention dates will be announced in the near future according to Mrs. Elsie Boente, secretary.

Kenneth E. "Ken" Gibbons has been appointed chairman, the president said, while Charles C. Crosswhite will handle the publicity. Other appointments will be announced shortly, Headlee said, and work will start in earnest on convention plans.

St. Louis is a wonderful convention city and local club members are looking forward to the job of staging the affair with plenty of interest and enthusiasm.

Charles C. Crosswhite
Publicity Chairman
8913 White Avenue
Brentwood 17, Missouri

Yavapai Gem & Mineral Society

Two interesting talks were given at the October meeting of the Yavapai Gem and Mineral Society held on the 7th in St. Luke's parish house, Prescott.

O. P. McMican discussed "Fluorite", and exhibited some fine specimens. Francis M. Baer, from Washington, D. C. who was a member of the third Greenland expedition of the University of Michigan in 1928, spoke on "Agates", and exhibited some choice pieces from his collection.

"Fluorite, or fluorspar as it is commonly called," said McMican, "is known chemically as calcium fluoride. It is composed of about 51 per cent calcium and 49 per cent fluorine. There is produced in this country some 300,000 tons per annum. Of this amount some 75 per cent is produced in Hardin county, Illinois, and the two counties just south of there across the Ohio River in Kentucky—Crittenden County and Livingston County."

The speaker said that while the mineral had been known since 1529 it was first noted in Illinois in 1818. Deposits in Kentucky and Tennessee were noted a few years later. "It has been produced in Kentucky for about eighty years," he added. "In Crittenden county the value of the fluorspar, shipped annually, exceeds the value of the sale of agricultural products."

McMican said that a couple of years ago he saw a car of very fine fluorite being unloaded in Marion, Ky. Upon inquiry he was told it came from Arizona. He included a specimen among those shown at the meeting.

Francis Baer described Arizona as one of the garden spots of the world. He first came here by way of Flagstaff. On his present visit to the state he reached Wickenburg in June, where he spent a month, and then came on to Prescott in July. He is living in a trailer at Granite Dells.

For hunting agates, Baer selected Zapata, "hard by the Rio Grande, 50 miles east of Laredo".

"During the entire period of nearly six months on the lower Rio Grande, he added, "I brought in a total of approximately one ton of materials, carefully chosen in the field. Most of the area over which I worked will eventually become inundated upon completion of the great Falcon Dam.

Baer said that the material he found, in addition to the brightly colored red, green and yellow moss agates, for which the Rio Grande is most famous, included a wide variety of banded agate, also eye agate, carnelian and sard, plasma (actually an extremely dense and microscopic moss in most cases), agatized and jasperized wood, wax agate, turtle back, iris, some amethystine and obicular agate, sagenite, cloud agate of various colors, dendritic or scenic agate, and many others.

The quiz prizes were won by Roy Kuntz (senior) and Lauren Bettencourt (junior). Door prizes went to Mrs. Hazel H. Greaves (senior) and George Preston (junior).

Harold Butcher
P. O. Box 937
Prescott, Arizona

Geode Rocks and Mineral Society

The Geode Rocks and Mineral Society of S. E. Iowa met at the New London Community Hall at 7:30 P. M. August 22, 1952. Four Geological films were shown as follows:

"The Earth's Rocky Crust"
"Limestone Caverns" (in color)
"Yosemite, The End of The Rainbow" (in color)
"Ground Water"

There were 28 members present at the meeting. Out of town guests were: Mrs. Frank Krogmeier, Ft. Madison, Iowa, who brought a display of minerals and fossils, and Mr. Gerald R. Jones, also of Ft. Madison who brought with him part of his mineral collection.

Both were excellent displays. Recent field trips by some of the members were related to the club.

Refreshments were served at the close of the meeting, and a general discussion among the members and guests followed.

Earl Smith, Sec.
Geode Rocks and Minerals Society of S. E. Iowa
New London, Iowa

Tucson Gem & Mineral Society

The Tucson Gem & Mineral Society met on June 17th. Art Objects made and acquired by members were displayed.

On July 1st movies were seen, "Our Earth" a story on the decomposition of rocks, "Wyoming and Her Natural Resources," were the titles. Many nice unusual mineral specimens were brought by members.

On July 15th, Mr. Clayton Gibson told of collecting in the Orient during the present hostilities. A nice display of minerals and hand carved objects were seen, two exceptionally nice pieces of Rutile in Quartz and some nice Stibnite Crystals from Japan were in the collection.

Mrs. C. L. Motel, connected with the Mission Curio Mart, gave a talk on her trip to Angels Camp Federation Show. The Gold display and the display in the Mineral Notes & News Booth were two mentioned among others.

David P. Record
Publicity Chairman
Tucson Gem & Mineral Society
4400 So. Mission Road
Box 384 Rt. 3, Tucson, Ariz.

The Los Angeles Lapidary Society

At a recent meeting The Los Angeles Lapidary Society enjoyed an unusual demonstration and illustrated lecture by Mr. Art. Terry of Manhattan Beach on the identification of gemstones and crystals thru the media of magnified photography. While studying crystallography with Mr. Arciniega, Mr. Terry became interested in the identification of gem material by the tell-tale inclusions present in all of nature's crystals. He began to photograph crystals and small sections thru his microscope. His collection of color slides on this subject is second to none.

By high magnification Mr. Terry was able to point out to the group the three-phase inclusions identifying the emerald and the tiny square crystal inclusions that differentiate the Colombian emerald from the tiny diamond shaped inclusions of the Russian emerald.

He also pointed out the "silk" needle-like curved radiating lines characteristic of the andradite garnet.

The internal "chevrons", due to polysynthetic twinning which are lines parallel to the hexagonal faces of the sapphire were very clearly shown on the screen. This is the same phenomenon that when very pronounced produce the star in opaque sapphire. The angular inclusions of the tiny octahedrons of spinel were seen in the photography of a natural spinel crystal.

Mr. Terry's slides of synthetic crystals was equally interesting. Magnification brought out the elongated clusters of gas bubbles definitely identifying the materials as synthetic.

It was interesting to note that natural corundum always contained inclusions and "silk" while synthetic corundum displayed no liquid inclusions but tiny bubbles like tadpoles.

Mr. Terry's approach to our hobby is a rather new one from the amateur's point of view but from the questions asked the interest in this new phase was remarkable and no doubt the film business can expect an increased demand on color film.

Mary Humble

MINERAL & LAPIDARY SOCIETY OF PITTSBURGH

The Mineral and Lapidary Society of Pittsburgh, Pennsylvania, meets the third Friday of each month at 7:30 P. M. in Classroom "A", 1st floor, Carnegie Library, in the Oakland district. For out of town collectors, The Carnegie Institute and Library is located on Forbes Street at N. Bellefield Street, and the Library entrance faces Schenley Park. Visitors are always welcome. All persons in Western Pennsylvania who are interested in minerals and gems are cordially invited to join our group.

Howard V. Hamilton
115-B E. Adams St.
Vandergrift, Pa.

Flemington Mineralogical Society

Our semi-annual elections were held at the Sept. 15, 1952, meeting of the Flemington Mineralogical Society, the results being as follows.

President—Milton Birnbaum

V.-Pres.—Morton Metersky

Secretary—J. Kent Perry

Treasurer—Clara Yrshus

A new practice has been adopted to instill a little added zest into meetings. . . the members who have been collecting for some time raffle off a specimen to the newcomers at every meeting. Sometimes as many as three nice specimens are given.

Ed Bettinardi, our club electronics man, will construct a geiger counter soon as the parts we've ordered come in. It will have the same features as the group of counters selling on the market around \$100.

Twelve new members were voted into the club, the largest increase we have ever had. We sincerely hope they all catch "Rock Pox" and all stay in.

Our club is just one year old this month, and our records show that we took 41 field trips in that one year. That includes trips to colleges and museums besides collecting trips. A trip almost every week may seem rather often to many people, but most were well attended. Both Franklin and the zeolite localities are within easy day's driving, even starting at lunch time. We are in a position such that both Franklin and Paterson are about 50 miles away. Starting early in the morning we go to Eastern Penna. or Southern New York.

By the time this is published the Eastern Federation Convention in Newark will be over, but I will just mention that we are planning an active part and are looking forward with relish to a wonderful shindig.

J. Kent Perry, Sec.
Flemington Mineralogical So.
RD 1
White House Station, N. J.

Wisconsin Geological Society

The Wisconsin Geological Society opened its busy season with a field trip for trilobites to the Hartung Quarry in Wauwatosa, Wisc., followed by a joint field trip to the Lutz quarry, near Oshkosh, Wisc., as guests of the Oshkosh Geological Society. There rainbow-hued pyrite and marcasite has become the magnet for Badger rockhounds. They appear as cubes, flakes and needles, and are much more colorful than the Ives quarry variety near Racine, Wisc. The annual swap-nite and the annual joint field trip to the Mazon Creek strip mine area with five Illinois societies, all Midwest Federation affiliates, are "next on the agenda."

Hugh Kuhn
Publicity Chairman

Tucson Hughes Rock Club

The Tucson Hughes Rock Club met at Caples Camera Club, 2601 North Campbell Ave. on October 13. President Les Campbell set date for a field trip to Mammoth, Arizona, a fossil location, on the 26th, the day before the next meeting October 27.

Forty people in 12 cars went on the last field trip to Washington Camp, Arizona. Mr. Adolph Ripepe gave a resume of the fun had and showed some specimens collected.

Mr. Ed Van Sice introduced the speaker of the evening, Mr. Fil Turner, Geologist, Mining Engineer and Civil Engineer, who gave an excellent talk on earth formations and fundamentals of rock collecting. An excellent collection of minerals collected by him were displayed.

Meetings are held at 8 p.m. every second and fourth Monday of each month at 2601 North Campbell Ave., Tucson, Arizona.

Pub. Chr. David P. Record
4400 So. Mission Road,
Tucson, Arizona

Georgia Mineral Society

Dr. A. C. Hawkins, author of "Hawkins Book of Minerals," and Georgia Mineral Society life member, addressed the September meeting on "Minerals North of the Mason-Dixon Line." Dr. Hawkins embellished his talk with Kodachrome slides.

At the September Gem Section meeting, Janie Morris took the members on an easy-chair tour of western scenes and bizarre rock formations using Kodachrome slides to accomplish the unmoving journey. In addition, officers elected for the coming year were S. C. Knox, chairman; Marjorie Hollingsworth, treasurer; and J. Roy Chapman, secretary.

Nelson Severinghaus, 213 Glenn Circle, Decatur, was installed as president of the Georgia Mineral Society at the society's eighteenth annual meeting in October. The installation took place as a feature of the dinner meeting in the ODK room of the Georgia Tech dining hall on October 13. Gilbert W. Withers reported on his recent trip to Mexico in quest of gem minerals. Romeo Martin, retiring president and incoming vice-president, reported on the society's activities during the past year. Other officers installed were J. Roy Chapman, recording secretary; S. P. Cronheim, treasurer; Dr. Frank Daniel, historian; Dr. Lane Mitchell, museum curator; and Erna L. Mason, corresponding secretary.

Leland Quick, editor and publisher of *THE LAPIDARY JOURNAL*, discussed "The Second Stone Age," at the October meeting of the Gem Section at which members of the Mineral Society were also in attendance. He brought with him an interesting collection of silversmith, the first and finest ever exhibited in this area. The Gem Section members were particularly enthused by Mr. Quick's comprehensive outline

of the hobby possibilities in gem and metal-craft activities.

Erna L. Mason
State Health Dept.
Atlanta 3, Ga.

Central Iowa Mineral Society Geode Field Trip

Thirty-four members of the Central Iowa Mineral Society gathered together the weekend of October 18 and 19 in southeastern Iowa for the purpose of hunting Geodes.

The two day field trip was planned in fine detail by Mr. and Mrs. Gus Brown, members of the club. They spent the preceding weekend in the territory to be visited, contacted owners for permission to hunt along the creek-beds on their land, found the best localities for large groups to park cars and to hunt, found sleeping quarters, arranged for meals and thought of all details incidental to a well planned trip.

Saturday noon was the beginning of the collecting for the greater number of members and the results were very good. Twenty-nine members ate dinner together that evening in the little town of Niota, Illinois, and spent the night in the town of Donnellson, Iowa. Sunday morning other club members joined the group and at 8 a.m. the second field trip was underway. By 2 p.m. gunny sacks, knapsacks and pockets were loaded, blisters were well developed on fingers, hammers were well seasoned and backs were aching with the efforts of transporting geodes to cars.

In all respects the two day field trip was perfect. The weather was warm enough for comfort and cool enough for enjoyment. The beautifully colored trees were a constant delight to the eyes, the water in the creeks was low enough for good exploring, the snakes had gone to their winter hideouts and there was an abundance of geodes for all.

As to the types of geodes found, the variety was astounding. Quartz was the most prevalent filling in these rough nodules but with such a variety of associated minerals. There were tiny black crystals of magnetite, golden hairs of millerite, dark crystals of sphalerite, cubes of pyrite, dusty coatings of hematite, white powdery pockets of kaolin, botryoidal chalcedony, golden yellow iridescent quartz, lovely clusters of pearly white calcite, and even more lovely frosty pink crystals of calcite and as a final topping many of these calcites were fluorescent, especially an amber brown type of calcite which was sometimes iridescent also. Fluorescence was noted in green, pink and a dark orange color.

Everyone who went on this field trip believes that it should be an annual affair and a heartfelt vote of thanks was extended to the Brown's for their efforts in making this a perfect field trip.

Dorothy L. Hays
Rt. 1 Buffalo Rd.,
Des Moines, Iowa

Chicago Rocks and Minerals Society

Mr. J. E. Farr, president of the Earth Science Club of Northern Illinois, spoke to the Chicago Rocks and Minerals Society at its October 11 meeting. His topic was "Gem Stones of the Bible".

Mr. Farr, in a most interesting, realistic manner, outlined the history of the Israelites to the time of Moses and Aaron, his high priest. His talk was limited to the twelve stones in the breastplate of judgment, made for Aaron, as described in Exodus 39:10-13.

The first stone was called Sardius, and is now believed to have been a Ruby (red corundum; all other colors use the name Sapphires), although it may have been a Carnelian.

Topaz, the second, derived its name from Topazos, an island in the Red Sea, where it was found. However, the stone referred to was what we know as Peridot.

The third, Carbuncle, we know as Garnet. The fourth gem was Emerald, the dark green variety of Beryl. Another variety, probably Aquamarine, was the tenth stone.

Number five was called Sapphire, but instead of Corundum may have been Lapis. The Bible names Diamond as number six. The seventh was Ligure, probably what we know as Zircon, the crystals of which are usually brown, but change color when heated.

Agate was the eighth, Amethyst the ninth, Onyx the eleventh and Jasper the last of the twelve gems, each representing one of the twelve tribes of Israel.

Mr. Farr presented information on these stones in an understandable manner and exhibited in a lighted, portable case, rough and polished specimens of each gem. He spoke also of modern methods of gem identification depending on dichroism, specific gravity and light refraction. He explained that for every gem there is a certain light refraction, therefore facets for gems differ in angles so that light, instead of being absorbed by the stone, is reflected out of it, giving maximum brilliance.

Dorothy H. Gleiser
Publicity Chairman
1066 Griffith Road
Lake Forest, Ill.

Humboldt Gem and Mineral Society

The Humboldt Gem and Mineral Society met Sept. 26, 1952, at the Eureka Jr. High School, Eureka, Calif.

C. F. Starr gave a report on the chrome, manganese and other mines of this district.

A display case was shown by the Society president, Ogden Scoville.

A big hand was given George Morgan, the Society Secretary, for the splendid job done on

the Society's Gem and Mineral display at the California State Fair. The Society's display won the most points for the county.

Syracuse Mineral Club

A regular monthly meeting was held on Sept. 12, 1952, at Lyman Hall, Syracuse University, Syracuse, N. Y. Twenty members were present including a visitor from Phoenix, Ariz., and another from New York City. Dr. Apfel of the University gave a nice talk on how to test your minerals. A member of the club showed colored slides of a trip he made West this summer. R. L. Sylvester was elected chairman of the committee for displaying minerals at public exhibits.

Richard L. Sylvester
154 Parkside Ave.,
Syracuse 7, N. Y.

Tucson Gem & Mineral Society October Meeting

At the October 7 meeting of the Tucson Gem & Mineral Society, a technicolor movie "Gold, the King of Metals" was shown to a large attendance. This was an excellent and interesting picture, taken by E. W. Kean, an amateur photographer, who won honorary mention with it. Arthur W. Frautnick of Tucson synchronized and operated the tape recorder. Among several visitors attending was Mr. William F. Smith of Riverside, California, a member of the Orange Belt Mineralogical Society, who gave a short talk and showed a number of fine fire agates.

John W. Anthony, Professor of Geology & Mineralogy, of the University of Arizona, will give an address on Crystallography at the next meeting October 21. Meetings are held every first and third Tuesdays of each month. At the U. of A. Library Room 110, Visitors cordially invited.

David P. Record, Pub. Chr.,
4400 So. Mission Road
Tucson, Ariz.

Santa Fe Gem & Mineral Society

The Santa Fe Gem & Mineral Society held its first rock & mineral exhibit Sept. 16, 1952, at Chamber of Commerce rooms. Local members only exhibited. Results were very gratifying as most members were new recruits to the rock collectors hobby when the club was organized in February 1950. Many beautiful specimens and set jewelry were on display. Prizes were given for the best exhibits, etc. Mr. Walter Wright is chairman of entertainments and programs.

Ora D. Orme, Secretary
RD 1 Box 55
Santa Fe, N. Mexico

Mineralogical Society of Pennsylvania July Field Trip

We're grateful to Bill and Edna Hunt for arranging a field trip to the St. Clair Coal Company Strippings and pointing out to best collecting spots to 80 members and friends of M. S. P. on July 20, 1952.

Many large boulders of Pennsylvania fossils were found and quite a few collectors never got past them. Ferns, horse tails and fruits were among the interesting forms found.

Splitting shale is a fascinating occupation on a beautiful afternoon.

Fine specimens were found including Pyrite, Siderite, Quartz, Dickite and Melanterite. The Quartz crystals studded with Siderite were very showy.

Everyone paused after their rigorous collecting activities to hear Helen Bauhof's fine talk on Obsidian at the Lapidary Committee meeting. A general discussion of the ornamental stone followed, led by Gene Belz, chairman of the group.

The day was sunny and hot and at 6 o'clock the group adjourned very suddenly when a furious thunderstorm developed over the mountain.

August Field Trip

Thanks to the cooperation of Mr. H. W. Craig, President of the John T. Dyer Company, 106 members and guests of the M. S. P., went on a field trip to the Dyer Company quarries at Monocacy and Hay Creek, Berks County, Pennsylvania, on Sunday, August 17, 1952.

According to the research done by Ben Birchall of Philadelphia in Samuel Gordon's MINERALOGY OF PENNSYLVANIA, "The Dyer Quarries are 'Trap Quarries' and are a Triassic intrusive sill of diabase. The hydrothermal (hot water) metamorphs include: Calcite—golden yellow rhombohedral and scalenohedral crystals, Prehnite—green mamillary xl aggregates, Apophyllite—colorless or white tabular xls., Stilbite—colorless, white and yellow prismatic xls. Melacolite, Arsenopyrite, Scolcite, Thomsonite, Erythrite and others have been found. Some fluorescence is noted on a few specimens. It may be a Hyalite coating?"

Both quarries had recent blasts so the club members found their share of these specimens.

As usual the safety committee arrived early and posted the danger spots. Charles Thomas set up a superb collection of sample specimens and answered many questions about the quarry.

Harold Evans gave an interesting talk on the Beryl family at the Lapidary committee meeting further illustrating his talk with Beryl xls. of breathtaking beauty brought by J. E. Schmidt and Leonard Morgan.

Collecting was a bit hard, but many nice finds were made among them were Prehnite, Stilbite, Laumontite, Pyrite, Calcite and Apophyllite.

September Field Trips

On September 7, 1952, at 1 p.m. approximately 90 members and friends of M. S. P.

met at Cornog Quarry, Chester County, Pennsylvania, to take advantage of a recent blast set off by the Keystone Trap Rock Company.

According to the HONEYBROOK-PHOENIXVILLE QUADRANGLE, "Cornog Quarry, opened in 1907, is in gabbroic gneiss cut by pegmatite dykes. It is precambrian intrusion that has been traced from Cornog nearly to Ludwig's Corners where it is buried under Cambrian Quartzite debris **** Rock quarried is known commercially as Trap Rock. It is a fine grain but not aphanitic. Where exposed in surface outcrops it has a green color. Where exposed in the quarry it is light gray green, irregularly jointed and traversed by calcite veins. Recrystallized pegmatite with large blue quartz xls is a characteristic feature, together with siliceous feldspathic injections. This dyke-like gabbroic injection is the Pickering gneiss in an inclusion in the injecting quartz monzonite."

The most prominent mineral found was a sapphire blue quartz easily acquired by everyone who dug a little bit. This was a new and welcome addition to most of our collections.

It was fun seeing old friends and talking over our summer trips. We all regretted leaving as the day ended.

On Sunday, September 14, 1952, 70 members and friends of M. S. P. gathered at the J. Morrissey Company's Eureka Quarry to take advantage of a fresh blast.

According to Juliet Reed's research in the "United States Geological Survey Folio-Germansburg Quadrangle," The rock of the Eureka Quarry belongs to the Newark group of the Triassic age, 180 million years old. The Stockton formation (the Monocacy quarry is a "trap-rock intrusion into this formation") is older than the Lockatong, directly above it. The latter is distinct in character from the Brunswick formation above it, and the Stockton below, but these formations often merge into one another without "unconformity" which indicates a long period of erosion between depositions. The sedimentary rocks of this group are deposited under the same general conditions in shallow fresh water. The various layers (which show local variations) tell their own stories: cross bedding in stream deltas; raindrop marks and cracks in mud flats; ripple marks in shallow water; and dinosaur tracks where the cousins of the huge beasts of the later Mesozoic era (of which the Triassic is the first of three "ages") went about their business of staying alive. Fossils of waterfleas have been found here. A lake once covered the quarry area. In the Lockatong formation (originally 2000-3000' thick) fine muds became, under pressure dark hard shale, and the sands, a fine grained sandstone. These rocks are hard and make a good road metal.

During the late Triassic time the older folded rocks beneath the horizontal Newark Strata shifted, causing the younger rocks to tilt and to be faulted. Around Eureka, the strata dips north or northwest 12-20 degrees. There are

numerous normal faults, with the downthrow on the east side of the fault plane. In Pennsylvania there were intrusions of a dark trap rock into the Newark Group in the late Triassic time. These correspond to the lava flows, Watchung Mts., and intrusions Palisades of the New Jersey Triassic formations.

Thank You

The Mineralogical Society of Pennsylvania wishes to thank Howard Galt, Keystone Trap Rock Quarry, Glenmore, Pennsylvania and J. Morrissey Inc., Eureka, Pennsylvania for their hospitality and cooperation. Both companies opened their offices and utilities to our group and seemed proud to have us as their guests. Their good will and courtesy is greatly appreciated by all M. S. P. members.

Newly Appointed Committee Chairmen

GEOLOGY—Juliet (Mrs. Karl) Reed, Box 11, Wynnewood, Penn.

PALEONTOLOGY—Arthur Hopkins, 741 Beacon Lane, Merion, Penn.

RADIO-ACTIVITY—Charles Owens, 6242 Cardiff Street, Philadelphia 24, Penn.

Co-Chairman—Jack Fogarty, 35 North 34th Street, Philadelphia 4, Penn.

PHOTOGRAPHY—Harold Evans, Box 425, Doylestown, Penn.

Junior Division

A Mineral Identification derby was held at the home of mentor, Jim Irvine at Collegeville, Penn.

Over 1,000 excellent duplicates labelled with identification and locality were contributed by senior members. These were key numbered and were worked on by Junior members using physical tests and chemical identification. Correct identification made the specimen the property of the identifier. There were very few specimens left at the end of the day.

A feast of Mrs. Irvine's delicious cake and innumerable glasses of milk ended this happy affair.

M. S. P. is grateful for the opportunity of nurturing this active group of future adult earth scientists.

Progress and Accomplishments

Leonard J. Duersmith, Curator of Minerals, Franklin and Marshall College museum and President of the Mineralogical Society of Pennsylvania, wrote a fine article, the "Mineralogical Society of Pennsylvania" in the September issue of the Commonwealth of Pennsylvania's Department of Internal Affairs Bulletin.

We especially wish to thank Helen and Otto Bauhof, Editors of the KEYSTONE NEWSLETTER for the continued and constantly growing excellence of this interesting and informative little publication, which aids our publicity job so much.

Gerry & Will Shulman
Co-Chairmen Publicity Committee
113 Huntington Terrace,
Newark 8, N. J.

Subscribes for the 28th Time!

Editor R & M:

I enclose my check for another year's subscription for ROCKS AND MINERALS for the 28th time, as my file is complete from No. 1 of Volume one. As I am past eighty-six, it is quite certain that I will not send twenty-eight more checks for ROCKS AND MINERALS, but I am glad I have sent that many, and on three or four occasions have contributed a few pages.

While scarcely an amateur in the study of minerals—to say nothing of rocks—I have derived much pleasure from it, not only in the home library, but also in the field. In my archaeological work, I have found some fine agates, carnelians, chlorastrolites, thomsonites etc., to say nothing of more common minerals, and the materials used by the Indians in making their artifacts, has been a source also, of much pleasure in their identification as to what they were made of, a surprising number of gem or semi-gem materials. I have not seen any reason for criticism; on the other hand, much to commend and congratulate you on your perseverance under difficulties that I know you had in making the magazine a success.

Fred Dustin
Saginaw, Mich.

Oct. 18, 1952

A Suggestion to a Critic!

Editor R & M:

Ever since the letter, dated June 26, from Richard W. Callison, of Chariton, Iowa, appeared on Page 369 of the July-August ROCKS AND MINERALS, I've been thinking!

It certainly speaks well for you, and is a compliment to the mild-mannered disposition you must have, that such a critical letter is printed by you, with no comment.

I would suggest that your critic, Mr. Callison, take any copy of ROCKS AND MINERALS to a printer and ask him what he would charge for duplicating such a magazine. The answer would surely surprise him, and he'd realize that the small price which subscribers pay for such a grand magazine as R & M is, issue after issue, doesn't begin to pay for the cost of issuing it, unless there are "pages and pages" of advertisements.

Here's to ROCKS AND MINERALS, may it and its grand editor continue!

(Rev.) William Frazer
Sept. 10, 1952. Moosic, Penn.

Friends Will Appreciate Magazine!

Editor R & M:

Enclosed you will find a check for the amount of \$1.80 for which please send three copies of the September-October issue of ROCKS AND MINERALS. I have some friends I would like to present with a copy each. You may get some new subscribers from them when they see what they are missing.

Mrs. Ray Scherzinger
Riverside, Calif.

Oct. 21, 1952 *

FROM AROUND THE WORLD - - -

SPECIMENS

Epidote, Mich. Amygdaloids in basalt. Green. 2x3" 50c, larger 75c, \$1.00.

Specular Hematite, Mich. An attractive specimen. 2x3" 50c, larger 75c, \$1.00.

Pyrite, Park City, Utah. Bright brassy cubic clusters. 2x2" 50c, 2x3" 75c, 3x3" \$1.00, 3x4" \$1.50.

Hardness Set, 9 pieces in attractive red wood compartment box. Only \$2.75.

Rutile, Brazil. Super choice "V" shape twins. An unusual specimen to add to your collection. 1" 85c, 1 1/2" \$1.25, larger better \$1.50, \$1.75.

Samarskite, N. C. Highly radio-active, 2x2" 85c, 3x3" \$1.50, 4x5" \$3.50.

Garnet In Mica, N. C. Red garnets imbedded in 4x4" mica sheet \$1.00.

Manganite, Mich. Black bladed and radiated clusters with pyrolusite. 2x2" to 4x4" at \$1.00, \$2.00, \$3.50.

Satin Spar, N. Y. Pearly white luster. 2x3" 75c 3x4" \$1.25, larger \$2.00.

Our store is designed to render FAST MAIL-ORDER SERVICE. Orders under \$5.00 you send postage, orders over \$5.00 we pay postage. Prompt refund if you don't like our goods. Visit us in San Diego—we are always open. See our 300 varieties of specimen material. 50 varieties rough gem material for cab and facet cutting. Write us for those rare varieties in cutting and specimen items.

GEMCUTTERS SPECIAL !!!

Get acquainted with our bargain selection of slabs for cabochons for \$5.00 or our bargain selection of facet rough for \$5.00. Each selection contains \$7.50 or more worth of assorted items, mostly imported. After receiving your selection I'll bet you'll order again from us.

EVERYONE SHOULD HAVE ONE OF THESE !!!

A flawless emerald-cut rock crystal. Weight, 28 carats; size, 22x16mm. May be set in jewelry or displayed with your collection. The rock crystal is from Brazil and the cutting is done in Siam to American standards. Price only \$1.98. Carved Amethyst frog, 3/4" \$2.50. Rock crystal perfume bottle—a beauty at \$12.75. Carved Rock Crystal Oriental human figure. 4 1/2" tall \$8.75.

CATLINITE SPECIAL !!!

Everyone says it's the real Indian Pipestone. From Yavapai County, Arizona. A brick red material that can be carved with a knife. Order some for carving or for your specimen collection. Price per lb. — \$1.10.

GET ACQUAINTED WITH US !!!

We enter our seventh year of full time service to the rockhound fraternity. Send us an order or just ask for a copy of our 1953 booklet now ready. Also our monthly special list. You'll like our personal attention and our "MEMO" plan—described in our booklet. Pay after seeing what you are buying! With our large accumulation of foreign and domestic sources we are constantly obtaining materials that are unusual and reasonably priced. Glad to try to obtain that "Something special" item you want —no obligation to you. A happy and prosperous 1953 to YOU.

PLUMMER'S MINERALS

4720 POINT LOMA AVENUE

SAN DIEGO 7, CALIFORNIA

GEM MATERIAL

Green Quartz, Uruguay. Clear for faceting. Unusual. 5 gram chunk \$3.75.

Red or Blue Tiger Eye, Africa. Chunks \$3.50 per lb. or slabs 3 sq. inches for \$1.40. All chatoyant.

Bloodstone, India. Plenty of red flecks on green plasma. Walnut sized chunks selected quality 1/2 lb. for \$3.25.

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Bargain Beryls, Brazil. Various colored chunks. Fair cutting possibilities. 1 oz. for \$1.95, 2 oz. for \$3.50.

Moss Agate, Montana. Some dandy slabs at 3 sq. in. for \$1.00. Try some.

Petrified Wood, Arizona. Pretty nice cutting, chunks 1 to 4 lbs. \$1.00 per lb.



ATTENTION CRYSTAL HUNTERS! FREE HERKIMER DIAMOND

New booklet tells all about the "Diamond" region. Full of tips on finding crystals anywhere. A beautiful Herkimer Diamond embedded in a pocket in the book. Don't miss this bargain. Offer will be withdrawn when my supply of diamonds is exhausted. Still \$1.00 postpaid.

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RAINBOW RIDGE MINE

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Newest ★ Cleanest ★ Handiest

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8" cast aluminum PEEL 'EM OFF disc sander,
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PEEL 'EM OFF cement (you apply the
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1/2" or 3/4". Right or Left \$5.00
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Special Stone Cement Price 35c per 1-oz. jar

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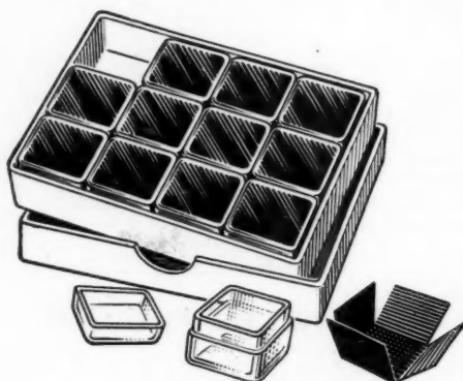
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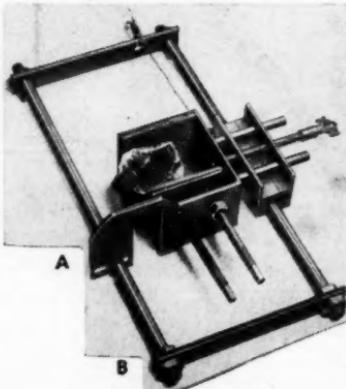
Carrier, complete with 12 boxes and inserts — Each .75; Dozen \$7.50. Plastic boxes, only; 20 for \$1.00; 100 for \$4.60. Specify black inserts, if wanted.

See also advertisement on page 641

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No trim saw is complete without a Tru-Cut Trim Saw Vise: Buy it; Try it; It is priced right for its great service, and fine performance. Save temper, Blades, Time, Wheels and Money. Cross feeds to $5\frac{1}{4}''$ slices. Vise box will accommodate a stone $2\frac{1}{2} \times 3 \times 5''$. Cash with order plus postage on 8 pounds; 10 days required for shipment. Prices subject to change without notice. Send for brochure.

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Ruggedly constructed of the most durable materials, it is designed to last a lifetime. Every laboratory, home, school or office needs this sturdy, accurate, thermometer. Bold, easy to read scale. Scientifically constructed for easy reading at any angle. New stock. Packed individually in beautiful lithographed box. Limited supply. Original cost \$2.50.

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UP TO 2300 DEGREES F. (1260° C.)

Exactly where you want it—on the spot! Safely! Instantly! Extremely economical. Will melt Pyrex glass or silver. One thousand and one other uses for this **precision gas torch** with the streamlined—throw-away-fuel-cylinder and carburetor-burner combination.

The old hand-pump "plumbers," torch is a museum piece now; a thing of the past. This truly 20th century torch-burner and fuel-cylinder is **instant** lighting, to full heat, in 1/10 second (with an ordinary match) and is always ready for use. Turn it on and light it up instantly for the smallest to the largest job. No waiting-for-heat nuisance. No waste burning between jobs—just to keep the torch at ready. Guaranteed safe. NO blowouts. Just follow instructions. Safety valve integral with fuel cylinder.

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You need never again be without heat; intense or slight. One demonstration will convince you. It is a **MUST** for plumbers, mechanics, hobbyist, farmers, laboratory men, gunsmith, jewelers, home owners—everybody.

Fuel lasts up to 15 burning hours. Torch weighs less than 3 lbs. and is 10" long by 2 and 3/4 inches diameter. World famous make. Shipped fully loaded and ready to operate. Will burn in any position; no priming; no pumping; no danger!

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5. Turquoise, Nevada: \$1.00 per oz.
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1/4 lb. Specimen Opal in Matrix	1.00
Cutting Opal in Matrix, with fire	4 for .50
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